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Lacquerware and Porcelain

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Introduction

Over many years, the fruitful collaboration between the Schloß Schönbrunn Kultur- und Betriebsges.m.b.H. (SKB), the Bundesmobilienverwaltung (Federal Administration of Movable Furnishings) and the Institute of Conservation, University of Applied Arts Vienna has produced excellent results, especially within the framework of conservation sciences diploma theses and research projects, as well as exemplary conservation and restoration assignments. The current research into the "Chinese Cabinets" at Schönbrunn Palace has achieved an absolute high point of this cooperation which transcends far beyond our national confines.

Wolfgang Kippes, Technical Director of the SKB until 2012, initiated the application for an interdisciplinary research project to the Austrian Science Fund (FWF) which was to serve as the foundation and preparation for the planned conservation of the Oval and Round Cabinet dating from the period of Maria Theresia. We searched an appropriate scholar to work with us in the project and found Birgit Müllauer amongst the ranks of our graduates. She wrote a successful project application which is now coupled with a conservation sciences doctoral dissertation on the porcelain decor of the cabinets within the research project. The scientific investigations into the lacquerware items with a variety of different provenances – Japan, China and Austria – are being handled by the conservation expert Silvia Miklin, and the experienced specialists Karin Troschke and Doris Müller-Hess joined the conservation team to work with the paper objects in the Porcelain Room.

To start the research project, a conference was organised which assembled international and Austrian experts from the fields of art history, monuments preservation and conservation as well as representatives from the Association of European Royal Residences in order to discuss questions about the technology, preservation and conservation of East Asian Cabinets in Baroque palaces as well as to debate issues of provenance.

The conference, entitled "The Conservation of East Asian Cabinets in Imperial Residences (1700–1900)" was held in the seminar centre of Schönbrunn Palace from July 4 to 5, 2013 and convened 92 specialists from around the world. It was a superb event which stimulated an intensive exchange of information and ideas and inspired several follow-ups.

The volume presented herewith contains the conference papers. The first part focuses on the East Asian decorations in European palaces and aristocratic residences, as well as the trading relationships between Europe and Asia which created the necessary background for the passionate collecting activities of the ruling families. Furnishing the

imperial residences with Far Eastern porcelain and lacquer objects was one of the consequences of this fashion. Our publication includes contributions from neighbouring countries with which Austria's history is closely entwined, as well as the Netherlands, Belgium, Poland, Great Britain, Sweden, the United States of America and Japan. An extensive art historical article on Schönbrunn Palace and its "Chinese Cabinets" rounds out the first part of the publication.

The second part of the book focuses on porcelain. The technological aspects, including material, production methods, decoration, as well as issues of conservation and preservation are treated. Furthermore, original historical as well as future display and mounting concepts of the ceramics in the cabinets, which is the subject of the current conservation science research at our institute, are discussed.

Examinations of lacquerware feature in the third part of the publication. Most of the objects are presented in the form of panels originating from China and Japan, often taken from dismantled folding screens and integrated into the Baroque wall panelling. Some items also represent the work of highly skilled European craftsmen who attempted to imitate the Far Eastern originals.

Provenance and the conservation history of a large number of objects form core questions which are also described and discussed in the conference contributions.

Birgit Müllauer is to be credited with the editing of this compendium, which represents the first cooperative publication between the SKB and the Institute of Conservation, University of Applied Arts Vienna. Our thanks go to her and to Stefanie Winkelbauer who undertook the English editing of the contributions, for their painstaking work.

I would like to take this opportunity to express special thanks to Franz Sattlecker, Managing Director of the SKB, for having encouraged and enabled the publication of the conference papers.

Furthermore, I would like to thank Elfriede Iby, head of the SKB's Department for Research and Documentation, for the years of intensive collaboration and for her help with the research project which runs through March, 2016.

Lastly, my profound gratitude to all the authors! We hope that this compendium will contribute to more exchange of interdisciplinary knowledge and experience and inspires more research in these exciting areas.

Gabriela Krist
Head of the Institute of Conservation, University of Applied Arts Vienna
Vienna, October 2014

Preface

Schönbrunn Palace has established itself as the most important site for visitors to Vienna and continues to grow in popularity. Attracting over more than 2.9 million guests to the Palace, the Gloriette, the Crown Prince's Garden and the Maze are unique in Austria.

This happy statistic is not only an economic factor, but evidence of the enormous interest in history, art and culture in general, and that relating to the Habsburg monarchy in particular.

Our visitors especially appreciate the experience of authenticity in a historic setting. This generates a duty to preserve the entire ensemble as best as possible in order to enable future generations to enjoy a similarly valid experience.

Since the foundation of the "Schloß Schönbrunn Kultur- und Betriebsges.m.b.H." (SKB) in 1992, almost € 190 million have flowed into the restoration and maintenance of the palace complex. A not inconsiderable portion of this amount goes towards the scholarly research into architectural and interior decoration history as well as research projects which are aimed at establishing scientific foundations for the largely complex problems.

The high numbers of visitors can go hand-in-hand with issues of monuments preservation by means of an explicit commitment to research and development combined with the relevant know-how. An important foundation for this path is the cooperation with university research departments, a strategy followed by the SKB for over 20 years.

The present volume of research is the result of collaboration between the Institute for Conservation and Restoration of the University of Applied Arts Vienna and the SKB. I would like to thank Prof. Gabriela Krist and her team, all participating conservators as well as my colleagues for their dedication and input.

Franz Sattlecker
Managing Director, SKB
Vienna, October 2014

ELFRIEDE IBY

The "Chinese Cabinets" in the Historical Context of Schönbrunn Palace's Interior Decoration

ABSTRACT

Due to the decision of Maria Theresia in 1743 to use the late 17th-century hunting lodge for her future summer residence, the main challenge was to adapt the Baroque construction of the palace for all ceremonial, courtly and private needs of the Habsburg Monarch and her family from the late Baroque decoration style to the so-called Rococo. Recently, and based on the considerable restoration work in the interiors of the palace, it was obvious that there were various stylistic periods in the rooms of the imperial apartments during Maria Theresia's reign. It is recorded that the Habsburg Empress loved "Indian" art works even more than jewelry, artefacts with an exotic appearance and touch of the Far East Asia. The Schönbrunn "Chinese Cabinets", which were decorated around 1755/60 with numerous precious objects, are an excellent example of the early 18th century predilection for Far Eastern lacquerwork and porcelain as well as silk and paper wall hangings. The representative rooms had traditional wooden panels with gilt early Rococo ornamentation, combined with paintings; for wall surfaces stuccolustro was applied or they were structured by architectural painting. After the middle of the 18th century a new period of room decoration started as regards the Corp de Logis in the center of Schönbrunn Palace, when the "Chinese Cabinets" next to the Small Gallery were decorated as very luxurious, private cabinets with their valuable lacquer panels and porcelain objects with different shapes, use and character. This exclusive and sumptuous decorative concept was even more relevant when the space had a special purpose, i.e. the so-called Vieux-Laque-Room as memorial room for Maria Theresia's husband, the Emperor Francis I. of Lorrain.

INTRODUCTION

The "Chinese Cabinets" in Schönbrunn Palace are among the most precious room ensembles of the *belétage*. Both cabinets have been specified as "Chinese Cabinets" since 1867.[1]

1 Realis, Schönbrunn. Ein Wegweiser für Fremde und Einheimische, Wien 1896, p. 12–13.

Fig. 1. a) Round Chinese Cabinet; © Schloß Schönbrunn Kultur- und Betriebsges.m.b.H./photo by A. E. Koller.

In the late 18th century the lacquer paintings are mentioned as "Japanese"[2], an inventory of 1812 describes the cabinets as "weiß mit violack poisiert", the porcelain objects are specified as "Japanese" or "Indian".[3] Since the palace was opened to the public in the 1920s, they have been commonly named "Chinese Cabinets". Recent research has focussed on the provenance and classification of the porcelain objects and lacquerwork of the cabinets. Thanks to the investigation of Jorinde Ebert as an art historian specialising on objects from the Far East as well as the scientific examinations of conservator Silvia Miklin, we are able to classify most of the porcelain in the Oval Cabinet as Japanese while that of the Round Cabinet originated in China.[4] In both rooms, Viennese or European objects – porcelain as well lacquerwork – were added to complete the decoration concept. One of the main topics of the current research-project under the leadership of Gabriela Krist[5] is to discover whether or not the additions were planned from the beginning to create a unique ensemble or if they were brought in to fulfill subsequent needs engendered by losses of original components of the decoration.

BRIEF HISTORY OF THE PALACE CONSTRUCTION WORK AND FURNISHINGS[6]

Schönbrunn Palace was projected and built by one of the most famous Baroque architects, Johann Bernhard Fischer von Erlach as an imperial hunting lodge for Joseph I. from 1696 to around 1700. Due to financial difficulties work on the interior decoration could not all be realised, only the *Corps de Logis* and the main parts of the West Wing were certainly finished and inhabited. The wing towards the East remained obviously incomplete, though the palace chapel was done and still displays Fischer's architectural and decoration concept. After Emperor Joseph's death in 1711 Schönbrunn served as dower residence for his widow; in 1728 Emperor Charles VI, Maria Theresia's father, took

2 R[otenstein], G[ottfried, E[dler] v[on], Reisen nach Wien und die umliegende Umgebung, in: Bernoulli, J., Johann Bernoulli's Sammlung kurzer Reisebeschreibungen und anderer zur Erweiterung der Länder- und Menschenkentniss dienender Nachrichten, vol. 14, Berlin/Leipzig 1784, p. 36, p. 42.

3 *Haus-, Hof- und Staatsarchiv Wien, OMeA, Karton 193, Zahl 148. Inventarium der in dem kaiserl. Königl. Lustschloße Schönbrun befindlichen Meubles. Anno 1812. Nr 28 und Nr 31 [Raumnummer].*

4 Ebert, J., Die Asienkabinette in Schloß Schönbrunn – Trinksitten für Heißgetränke am Hofe Maria Theresias, unpublished manuscript, Wien 2009, elaborated in commission by the Schloß Schönbrunn Kultur- und Betriebsges.m.b.H..

5 Asian Interior Decoration in Schönbrunn Palace – Conservation sciences for research, amendments and new perspectives on art and cultural history, restoration history of the Asian collection, Austrian Science Fund P25351 G21.

6 Iby, E./Koller, A. E. Schönbrunn Palace, Wien 2007, p. 90–161.

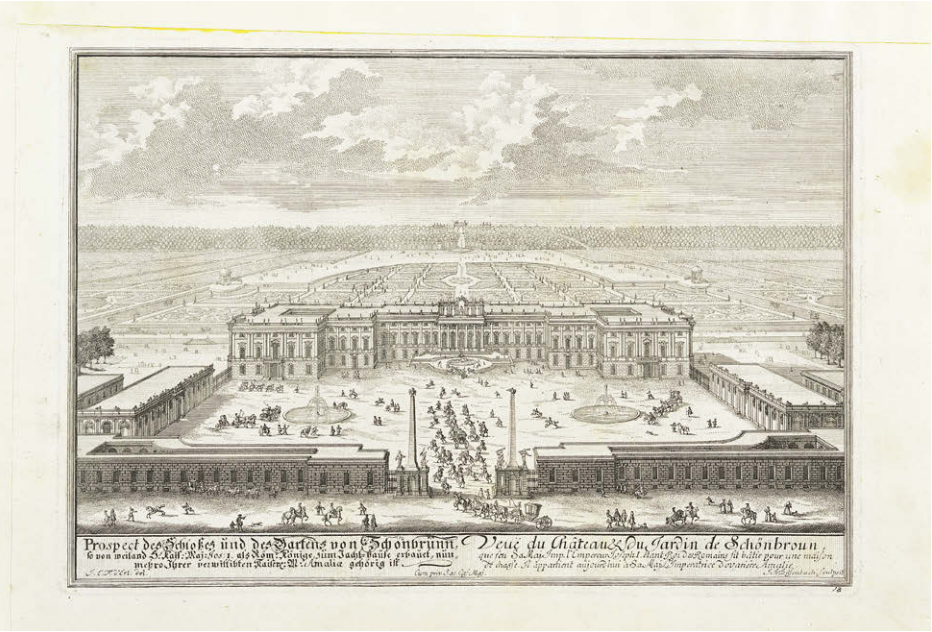

Fig. 2. Schönbrunn II-Project, constructed 1696–1700. Copperplate engraving by Johann Bernhard Fischer von Erlach, c. 1700; © Schloß Schönbrunn Kultur- und Betriebsges.m.b.H./ photo by E. Knaack.

the site with its palace and gardens. It is said that the young princess Maria Theresia was particularly attached to Schönbrunn and finally her father gave her the hunting lodge when she married Franz Stephan of Lorrain in 1736.

A few years later she decided to adapt the former hunting lodge as her summer residence. Maria Theresa's early fondness for Schönbrunn ripened into a very glamorous epoch due to the transformation of a mere hunting lodge into an imperial residence. In 1743 Maria Theresia decided that "*Schönbrunn should not only be repaired, but also enlarged and expanded to accommodate the court household more comfortably*".[7] The young monarch, who usually tended to be frugal with money, seemed to spare no costs as far as the reconstruction of her future summer palace was concerned. The conversion of the lodge into an imperial residence is strongly tied to the architect Nikolaus Pacassi who worked at the Schönbrunn building site from the beginning, initiating his fast and remarkable career at the Viennese court. It seems that Pacassi was highly talented, very constructive as well as creative, because in 1748 he was appointed as architect to the imperial court. Enjoying the favour of the empress, five years later he moved up to become

7 Glaser, J., Schönbrunner Chronik, Wien 1990[5], p. 35.

Fig. 3. Franz I of Lorrain as Holy Roman Emperor. Oil on canvas, anonymous, c. 1750; © Schloß Schönbrunn Kultur- und Betriebsges.m.b.H./photo by S. Rieger.

Fig. 4. Maria Theresia as Habsburg Monarch. Oil on canvas, anonymous, c. 1755; © Schloß Schönbrunn Kultur- und Betriebsges.m.b.H./ photo by S. Rieger.

chief court architect, replacing Jean-Nicolas Jadot. Like his patron the royal consort Franz Stefan who had originally put him in that post, Jadot was also from Lorraine, but chose to leave Vienna for Brussels. Subsequently Pacassi was responsible for all activities of the court building works. Maria Theresia commissioned Pacassi to undertake numerous conversions and reconstructions at various imperial residences; as a rule he was obliged to follow her very clear and precise instructions. The empress held him in the highest esteem "because of the good ideas and notions he had, but also for the speed with which he executed them".[8] Pacassi became the most representative court architect of Maria Theresia's era. Pacassi's architectural oeuvre hardly includes any original projects as he was constantly reworking existing buildings. As the only architect at Schönbrunn until 1764, he was solely responsible for all the reconstruction and decoration work until this date – also for the rebuilding and the later furnishing of the "Chinese Cabinets".

The aim of the work at Schönbrunn Palace was to convert the hunting lodge into a residential palace. Except for the centre, the shape of the Baroque palace has been more or less maintained; the outer walls on the east and the west side must have been newly

8 Hajos, G., Schönbrunn, Wiener Geschichtsbücher, vol. 18, Wien-Hamburg 1976, p. 46.

erected to create a continuous *enfilade* and its annexed service rooms in between the different apartments. Even intense research in different archives, the discoveries during restoration works etc. could not relate a totally clear record of how the construction and decoration work was planned and realised. The only existing proof is that the summer *séjour* of the Viennese court still took place, apparently without being disturbed by the ongoing building works and the craftsmen as recorded by Maria Theresia's Grand Comptroller Count Khevenhüller-Metsch in his diaries which were published in the 20th century.[9] Today we know the palace underwent different periods of remodelling: three phases in the *belétage* and two in the ground floor.

The first period includes construction and decoration work in the *Corps des Logis* and in the imperial apartments of the East Wing 1745 – 1749.

During the second period, a new decorative scheme for the rooms in the *Corps de Logis* – including the remodelling of the Great Gallery with a vaulted ceiling – from the Lantern room (probably) to the second *Antecamera*, today's ceremonial hall, as well as alterations and refurbishment of the rooms of the West Wing; some individual rooms in Maria Theresia's apartment, i.e. the "Porcelain Room", the so-called "Millions Room" and the northern apartment of the East Wing from 1754 – 1765.

The third period included the refurbishing of the Vieux-Laque-Room in 1767/68 following the sudden death in 1765 of Maria Theresia's beloved husband Emperor Franz Stephan.

Subsequently the widowed Empress transferred her private apartment to the ground floor, and commissioned Johann Wenzl Bergl to paint her own and two other apartments on the ground floor with the exotic landscape paintings which he accomplished between 1769 and 1775. These periods of adaptation are sometimes recorded by written documents which are not always easy to interpret, though luckily they sometimes correspond to fragments found during the restoration work. During the first period of reconstruction the imperial apartments in the East Wing and the central section (see Fig. 7a) were the focus of all the work which concluded in spring 1747. On the courtyard side, instead of the older gallery of the hunting lodge in the centre, the Great Gallery is situated, while the Little Gallery with cabinets on both sides was placed on the garden side: the East Asian Cabinets were projected from the beginning.

Conversion work in the central section of the palace also included the hall in the ground floor corresponding with the same area in the *belétage*; work started very soon in 1743 and was finished three years later. This early dating is thanks to the diaries of

9 Khevenhüller-Metsch, J. J./Schlitter, H., Tagebuch des Fürsten Johann Josef Khevenhüller-Metsch, kaiserlichen Obersthofmeisters 1742 – 1776, vol. 7, Wien 1907 – 1925/1972, davon vol. 1 (1907), vol. 2 (1907), vol. 4 (1910).

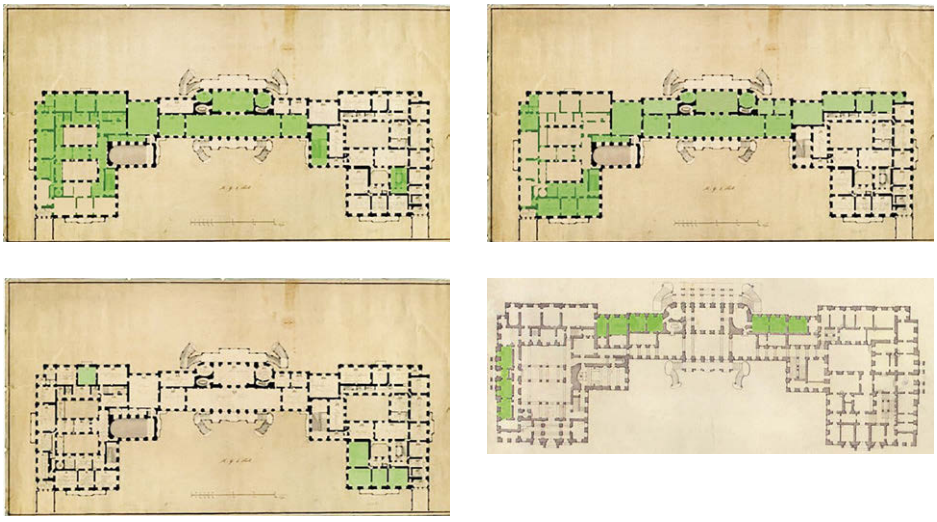

Fig. 5. a) First remodelling and decoration period 174–1749, *belétage*, architect: Nikolaus Pacassi; b) second remodelling and decoration period 1754–1760, *belétage*, architect: Nikolaus Pacassi; c) third decoration period 1767–1799, *belétage* and ground floor, architect: J. F. Hohenberg von Hetzendorf; © Albertina.

Prince Khevenhüller-Metsch, who reports that meals were taken "at a newly fashioned automatic dining-table or so-called 'table de conspiration'. The food and drink were sent up from below by means of specially contructed winches, so that it was no longer necessary for anyone to serve at table, thus allowing guests to speak more freely amongst themselves."[10] This documentation led to the frequently-proposed hypothesis that this private dining room is identical with today's "Chinese Round Cabinet", and that the circular intarsia pattern of the floor could be opened to allow passage of the table (see Fig. 1a) laden with food and drink, as is mentioned in most of the Schönbrunn literature. When the ground floor rooms were restored in 2001/2 the shaft for the winch together with the opening in the ceiling towards the "Chinese Cabinet" above was revealed along with the decoration applied around 1760. By this date at the latest the hole in the ceiling was closed.[11]

10 Khevenhüller-Metsch, J. J./Schlitter, H., Tagebuch des Fürsten Johann Josef Khevenhüller-Metsch, kaiserlichen Obersthofmeisters 1742 – 1776, vol. 7, Wien 1907 – 1925/1972, davon vol. 1 (1907), vol. 2 (1907), vol. 4 (1910), p. 170

11 Iby, E., Restaurierung und Denkmalpflege im Dienst der Erforschung von Bau- und Ausstattungsgeschichte am Beispiel des Erdgeschosses von Schloss Schönbrunn, in: Stalla, R./Zeese, A. (eds.), Architektur und Denkmalpflege, Festschrift für Manfred Wehdorn zum 70. Geburtstag, Innsbruck 2012, p. 124.

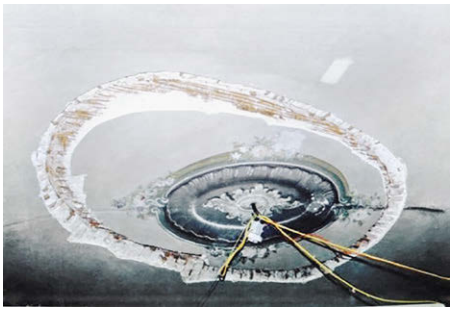

Fig. 6. Hole in the ceiling of room 28 in the ground floor for the "table de conspiration" discovered during restoration work; © Schloß Schönbrunn Kultur- und Betriebsges.m.b.H.

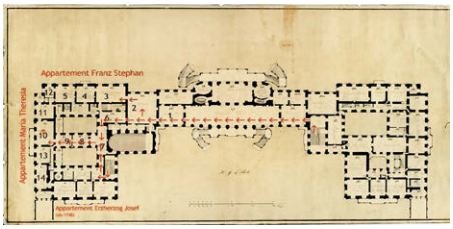

Fig. 7. Ground plan *belétage*, c. 1750, described as the path to the imperial apartments in the eastern wing; © Albertina.

The two galleries were also newly oriented from East to West so that a ceremonial entrance from the western staircase would lead to the imperial couple's audience chambers in the East Wing, thus creating the extensive distance that visitors and callers had to walk before being received by the imperial majesties.

Due to subsequent alterations we do not know exactly what the rooms of this first decoration period looked like.

Today's Blue Chinese Salon still has the walnut panelling with the above-door paintings by Paul Troger and the Chinese wall paper – produced in China for export to Europe. Probably it was part of the decoration of the audience chamber of Emperor Franz I. as it was already mentioned as "yellow chamber" in 1748.[12] The bedroom of the imperial couple, today the Napoleon Room, was also changed and even the wooden panelling was been redone in the 19th century. Recently, fragments of a Chinese silk wall-hanging were found – in a former alcove of the bedroom that might correspond with the following description from 1784: "auf Pekingart mit Blumen tapeziert".[13]

The Emperor's *retirade* was altered after his sudden death in 1765 and a few years later Maria Theresia decided to create a sort of memorial room for her beloved husband, the so-called Vieux-Laque-Room that represents a highlight of precious lacquerware room ensembles, and the culmination of Maria Theresia's personal predilection for all kinds

12 Khevenhüller-Metsch, J. J./Schlitter, H., Tagebuch des Fürsten Johann Josef Khevenhüller-Metsch, kaiserlichen Obersthofmeisters 1742 – 1776, vol. 7, Wien 1907 – 1925/1972, davon vol. 1 (1907), vol. 2 (1907), vol. 4 (1910), p. 279.

13 R[otenstein], G[ottfried, E[dler] v[on], Reisen nach Wien und die umliegende Umgebung, in: Bernoulli, J., Johann Bernoulli's Sammlung kurzer Reisebeschreibungen und anderer zur Erweiterung der Länder- und Menschenkentniss dienender Nachrichten, vol. 14, Berlin/Leipzig 1784, p. 46.

Fig. 8. Blue Chinese Salon, formerly audience chamber of Franz I. of Lorrain; © Schloß Schönbrunn Kultur- und Betriebsges.m.b.H./photo by E. Knaack.

of East Asian arts and crafts. The remodelling and interior decoration was finished in 1749; a few years later a new period of refurbishment was initiated when Princess Charlotte, the emperor's sister who had inhabited the West Wing of the palace, left the Viennese court in 1753. It appears that Maria Theresia then decided that the *Corps de Logis* should also get a new look: during this phase the outstanding room ensembles in the Maria-Theresian Rococo style were created.[14] It was always supposed that the Great and the Small Galleries assumed the appearance that we know today at this time, from 1755 to 1760, when both were treated to vaulted ceilings with fresco paintings and their exuberant stucco decoration. The older decoration, executed around ten years previously, was discarded. During the restoration work in the Small Gallery in 1998/99 an older surface was discovered revealing stucco marbling with a very restrained gold decor and a delicate border on the walls.

The following conclusion was that this scheme must correspond with the decoration from 1755/60 and that what we see today acquired its present appearance in the middle of

14 Iby, E., Schönbrunn als Residenzschloss Maria Theresias. Zur Raumdisposition der kaiserlichen Appartements und der Repräsentationsräume, article in the publication documenting the conference held during the exhibition "Friederisiko" Potsdam 2012, http://www.perspectivia.net/content/publikationen/friedrich300-colloquien/friedrich_friderizianisch.

Fig. 9. Vieux-Laque-Room Schloß; © Schloß Schönbrunn Kultur- und Betriebsges.m.b.H./ photo by A. E. Koller.

the 19th century when the room was extensively remodelled. Due to the author's intensive research and attentive perusal of the records it appeared that only the Great Gallery was vaulted in 1755, while the Small Gallery had already been vaulted 10 years earlier, with a *stucco lustro* surface all over the walls and ceiling as is still evident through fragmentary discoveries. In this first period the smaller gallery was separated from the northern end with large glazed doors and formed a unit with the annexed rooms, obviously also vaulted since the first remodelling and described as pavillons. This unit was supposed to have a certain private character as it was used primarily by the imperial family and the inner court circle, i.e. an *Appartement de societé* dedicated for just a very privileged circle. The Great Gallery was part of the *Appartement de Parade* with the northern adjoining rooms, which in turn were among the *Antechambres* – part of the long trek made by visitors to the imperial couple.

Until 1753 the Western Cabinet was – as previously mentioned – called *chambre de conspiration* with the movable table, used by Maria Theresia for confidential and intimate

Fig. 10. a) b) Small Gallery, discovered stucco marble-surface of the first decoration period, ca. 1746; © Schloß Schönbrunn Kultur- und Betriebsges.m.b.H.

meetings with her advisers. The eastern side cabinet was also used for social meetings like smaller dinners and card games. Maria Theresia loved social events and members of the court as well as foreign ambassadors or official visitors where often invited for receptions, musical presentations and balls. Prince Khevenhüller often claimed that there was not enough space in the Great Gallery so that the glass doors leading to the Small Hall had to be opened and everything rearranged.[15] Perhaps for this reason Maria Theresia decided to create an *Appartement double* – the spatial unit of the two halls and both cabinets in the *Corps de logis*.

Probably this newly created unit needed a unifying decoration concept – highly representative to express the powerful Habsburg-Lorraine dynasty and the exclusive taste of the Viennese court, building the frame for exceptional social gatherings. Therefore both galleries were decorated as we see them today – polished white walls, abundant gilded *rocaille* stuccowork and frescos painted on the vaulting; at the same time both cabinets were lavishly furnished with costly new fittings. It has been proved that Maria Theresia had a special predilection for so-called "Indian" goods[16], for precious artefacts from the

15 Khevenhüller-Metsch, J. J./Schlitter, H., Tagebuch des Fürsten Johann Josef Khevenhüller-Metsch, kaiserlichen Obersthofmeisters 1742 – 1776, vol. 7, Wien 1907 – 1925/1972, davon vol. 1 (1907), vol. 2 (1907), vol. 4 (1910), p. 259.

16 Maria Theresia in a letter to Prince Joseph Wenzel Lichtenstein, 1753: *Rien au monde, tous les diamants ne me son rien, mais ce qui vient des Indes, surtout le laque et même la tapisserie sont les seules choses qui me font*

Fig. 11. Mirror Room; © Schloß Schönbrunn Kultur- und Betriebsges.m.b.H./photo by E. Knaack.

Far East. Both cabinets are excellent illustrations of her very personal taste, in tune with the general 18th-century penchant for that increasingly influenced the interior of princely residences in Europe. At the time when the idea for redecoration in Schönbrunn Palace was aired, it is recorded that Maria Theresia and her husband visited Prince Joseph Wenzel Liechtenstein in summer 1754 to see his porcelain cabinet which was said to "be very precious and rare"[17]. Porcelain cabinets, lacquerwork and silk wall-hangings were in high demand and were collected for representative purpose – also in the Habsburg family. As Jorinde Ebert has pointed out, Maria Theresia was able to take over her parents' collections of precious East Asian wares including porcelain objects and lacquerwork. She and

plaisir. Arneth, A. Ritter von (ed.), Briefe der Kaiserin Maria Theresia an ihre Kinder und Freunde, vol. 4, Wien 1881, p. 304–305. *Nothing in the world, not even diamonds mean anything to me, but that which comes from the Indies, above all laquerware and even tapestries, are the only things which give me pleasure.*

17 Khevenhüller-Metsch, J. J./Schlitter, H., Tagebuch des Fürsten Johann Josef Khevenhüller-Metsch, kaiserlichen Obersthofmeisters 1742 – 1776, vol. 7, Wien 1907 – 1925/1972, davon vol. 1 (1907), vol. 2 (1907), vol. 4 (1910), p. 185.

her husband even expanded the collection with other imported goods or Viennese-made objects like Du Pacquier porcelain items.

In this second period of redecorating the interiors of Schönbrunn Palace from 1754 until the 1760s, the representative rooms of the *Corps de logis* and along the garden side *enfilade* of the West Wing were fitted with the largely still-existing wooden panelling painted white, so-called *boiseries*, arranged in regular sections framed with gilded Rococo-ornaments forming the typical Maria-Theresian Rococo style.

In the opinion of the author, both cabinets were assembled at the same period and their wooden panelled walls and gilded decoration correspond quite obviously with the decor of the corresponding room's adornments. Between huge mirrors above marble chimneys, windows and doors, numerous black and gold lacquer panels of varying forms and sizes are introduced, arranged into vertical sections. Small consoles grow out organically from the gilded Rococo-frames of the lacquer paintings bearing figures, vessels and vases of different origins and periods about which is featured in Jorinde Ebert's contribution. It is interesting that already in 1760 the Viennese court carpenter André Wachtelbrenner was contracted for further maintenance of the "Indian" decoration[18] – proof of an already-existing awareness that the care of such precious decorations would be a long-term challenge!

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18 Raschauer, O., Geschichte der Innenausstattung des Lustschlosses Schönbrunn, Text- und Quellenband, unpublished dissertation, Wien 1926, p. 100.

stellung "Friederisiko" Potsdam 2012, http://www.perspectivia.net/content/publikationen/friedrich300-colloquien/friedrich_friderizianisch.

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R[otenstein], G[ottfried, E[dler] v[on], Reisen nach Wien und die umliegende Umgebung, in: Bernoulli, J., Johann Bernoulli's Sammlung kurzer Reisebeschreibungen und anderer zur Erweiterung der Länder- und Menschenkentniss dienender Nachrichten, vol. 14, Berlin/Leipzig 1784.

GYÖRGYI FAJCSÁK

Lacquer Cabinets in Esterháza/Fertöd, Hungary – 18th Century Chinese Lacquer Screens in the Palaces of the Esterhazy Family

ABSTRACT

The art of the golden age of Eszterháza (1760–1790) was deeply influenced by the fashion of the Chinese export wares as well as by Chinoiserie. This paper focuses on one particular aspect of this Chinese fashion: the use of Chinese lacquer screens for the decoration of the palace at Eszterháza and their iconographical programmes. In the 18th century there were three different rooms where Chinese lacquer screens covered the walls: the study room of the Prince and two rooms of the Princess. The lacquer cabinets were built around 1767. The Prince's study room was covered by two twelve-fold screens. The Princess' apartment was originally decorated with probably eleven six-fold screens. This paper investigates their Chinese historical and art historical context as well as their iconographical programme. The study followed the further history of the panels used in the Princess' apartment at Wallner Street in Vienna.

INTRODUCTION

The golden age of Eszterháza (now Fertőd, Hungary), owned by the Esterhazy family, lasted almost three decades from the 1760s to the 1790s. The builder of the palace was Nicolaus Esterhazy (1714–1790), the so-called "Splendid" ("Der Prachtliebende"), as Goethe dubbed the Prince in his biography entitled "Dichtung und Wahrheit". The art of the golden age at Eszterháza was deeply influenced by the fashion for Chinese export wares as well as by *Chinoiserie*. The so-called "China-mania" was reflected in the architectural forms of the buildings in the garden, in the palace interiors, in furniture, in the motifs of wall paintings, in the wall cloths and in the wallpapers as well as in the huge amount of Chinese porcelain or in the lacquer cabinets. The fashion for Chinese art and *Chinoiserie* was reflected in the iconographies of the sumptuous garden amusements, festivals or theatrical sceneries. This paper focuses on one particular aspect of this Chinese fashion in Eszterháza dated to the second half of the 18th century, the use

of Chinese lacquer screens for the decoration of the palace and their iconographical programmes.

LACQUER ROOMS AT ESZTERHÁZA

Originally, there were three different rooms in the palace where Chinese lacquer screens covered the walls: the apartment of Prince Nicolaus Esterhazy was on the right side of the palace's midsection, his suite of rooms opened from the Sala Terrena. His Lacquer Cabinet can be found adjacent to his bedroom: "… Jetzo folgen die Zimmer rechts, welche der Fürst bewohnet. Das sechste Zimmer ist mit zehn japanischen schwarz lakirten Tafeln getafelt, worauf goldene Blumen und Landschaften, jede Tafel kostet am 1000 Gulden…"[1] John Pálffy von Rotenstein recorded in an account of the 1760s and 1770s.

The apartment of the Princess Maria Elisabeth Ungnad von Weissenwolff (1717–1790) was on the left side, also on the ground floor. Originally two of her rooms were covered with lacquer panels: "Das zweite Zimmer ist mit sechs schwarz lackirten japanischen Tafeln, darauf goldene Blumen vertafelt, jede Tafel hat hier 1000 Thaler gekostet… Das dritte Zimmer ist der Fürstin Schlafzimmer. Es hat fünf schwarz lackirte japanische Tafeln mit Gold, einen schwarz lackirten japanischen Kasten mit Gold…"[2] John Pálffy von Rotenstein continued in his description. Count John Pálffy, alias Rotenstein, was Captain of the Guards attached to the court of Empress Maria Theresia in Bratislava (Pressburg). As a close friend of Prince Nicolaus Esterházy's, he visited Eszterháza several times from 1763 on. His account covers the period from 1763 to the early 1780s and described the apartments covered with lacquer screens, though their sizes, decorations and the order of their framing were not mentioned. In 1767 the palace was a hive of activity. According to written records and financial documents (eg. bills), several master-craftsmen and artists were involved in decorating the new interior of three or more rooms of

1 "Now we follow into the rooms at the right which are occupied by the Prince. The sixth room is panelled with ten Japanese black lacquer panels, on which are gold flowers and landscapes, each panel costs around 1000 Gulden" Rotenstein, Reisen durch einen Theil des Königreichs Ungarn seit dem Jahre 1763, in: Bernoulli, J. (ed.), Sammlung kurzer Reisebeschreibungen, Bd. 9, Berlin 1783. See in Mőcsényi, Mihály: *Eszterháza feketén-fehéren* /Eszterháza in Black and White/ CD. (Budapest, 1998) Eszterh/b03 htm.

2 "The second room is panelled with six Japanese black lacquer panels on which are gold flowers, each of these panels cost 1000 Thaler…The third room is the Princess' bedroom. It has five Japanese black lacquer panels with gold, there is a Japanese black lacquer with gold chest…" Rotenstein, Reisen durch einen Theil des Königreichs Ungarn seit dem Jahre 1763, in: Bernoulli, J. (ed.), Sammlung kurzer Reisebeschreibungen, Bd. 9, Berlin 1783. See in Mőcsényi, Mihály: *Eszterháza feketén-fehéren* /Eszterháza in Black and White/ CD. (Budapest, 1998) Eszterh/b03 htm.

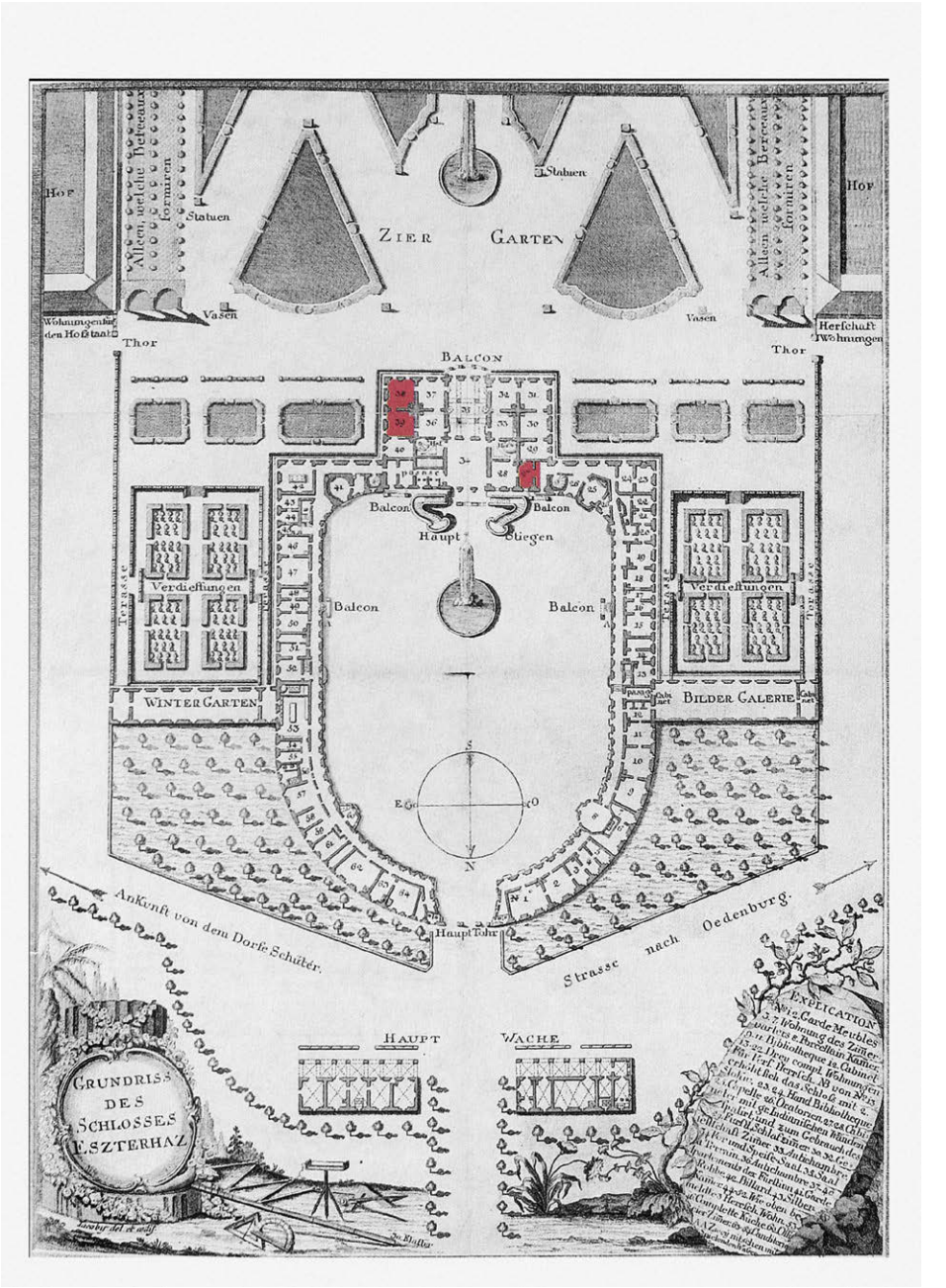

Fig. 1. Marcus Weinmann: Ground floor of Eszterháza with the locations of the former and present lacquer cabinets, 1784 © Eszterháza Centre of Culture, Research and Festivals/photo by M. Sulyok.

the Prince's apartment.[3] On basis of these works, e.g. the gilding on doors, the decoration of the frames, it can be supposed that the lacquer cabinets in both of the Prince's and the Princess's apartments achieved their final form in 1767.

DESCRIPTION AND RECONSTRUCTION OF THE LACQUER PANELS COVERING THE WALL OF THE PRINCE'S LACQUER CABINET

Written sources documenting the Esterhazy palace mentioned ten huge black lacquer panels with golden paintings in Prince Nicolaus Esterhazy's apartment.

The rectangular lacquer cabinet was 870 cm long and 470 cm wide, the decorations of the walls being determined by the regularity and the symmetry of the shape. The shorter sides of the cabinet were adorned with two pairs of lacquer panels (two of them were replacements from the 1970s) and one pair used for the two-fold door. The longer sides were decorated with four pairs surface units: four lacquer panels on the southern side and two lacquer panels and two windows on the northern side of the room. A pair of large mirrors was set in the middle part of the longer walls. These mirrors were framed by a pair of narrow Chinese lacquer panels.

After detailed examinations of the panels the author was able to reconstruct two Chinese twelve-fold lacquer screens which were used for the decor of this particular cabinet.[4] Their iconographical programme reflects a strong connection to the 18th century Chinese court paintings and export lacquer wares. They were produced in one of the lacquer manufacturies of Canton in South China in the *yangqi* (洋漆) technique, meaning Chinese or "Foreign lacquer" process, which was a typical painted lacquerware which originated in Japan and was often used for export wares in China.[5] The width of the screens were 540 cm, the heights were 212 cm. Both twelve-fold lacquer screens were cut apart in Eszterháza. The outer panels of the screens were removed (a total of 4 panels) and the remaining ten pairs of panels were split into two sets of five elements. These ten lacquer panels were framed in carved and gold-painted "boiseries". The four outer panels were cut off longitudinally and four pieces of the eight segments were used for framing the two mirrors of the cabinet.

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3 Valkó, A., Fertőd (Eszterháza, Süttör: Győr-Sopron megye) mesterei, művészei 1720–1768 között, in: Művészettörténeti Értesítő, vol. 4/1, Budapest 1955, p. 127–133.

4 Fajcsák, G., "Az örömök kertje" Kínaiak, mandzsuk, mongolok Eszterházán. Az Esterházy-kastély hercegi lakk-kabinetje. [Garden of Pleasures. Chinese, Manchus and Mongols at Eszterháza. The prince's lacquer-cabinet in the Esterházy palace] Műemlékek Állami Gondnoksága, Budapest 2007, p. 38, 66.

5 See the conservation report of a similar screen. Bredenstein, I./Hagedorn, B., Technologische Untersuchungen an Lackmöbeln aus dem Bestand der Staatlichen Schlösser und Gärten Hessen, in: Reepen, I./Handke, E. (ed.), *Chinoiserie* – Möbel und Wandverkleidungen. Bestandskatalog der Verwaltung der Staatlichen Schlösser und Gärten Hessen, Bad Homburg/Leipzig 1996, p. 76–89.

Fig. 2. Lacquer cabinet of the Prince © Gyula Forster National Centre for Cultural Heritage; Eszterháza Centre of Culture, Research and Festivals Management/photo by M. Sulyok.

Fig. 3. Reconstruction of the 12-fold hunting screen entitled Mulan © photo by M. Sulyok.

An analysis of the scenes painted on the lacquer panels helped us to reconstruct the original sequence of the screens. Each lacquer panel followed the same layout: surrounded with a floral border the middle was filled with scenes which connected thematically with each other. The frames of the panels were decorated with small landscapes, bird and flower paintings, fishes, auspicious objects placed in various medallions (rectangular, leaf-shaped, vase-shaped, etc.).

The main image of the first screen depicts a hunting scene. According to the rules governing Chinese painted compositions, the scene has to be sequenced from right to left. On the first right panel we can see the participants of the hunt: four resplendent horsemen wearing furred hats and their three attendants arrive.[6] The importance of one of the riders is emphasised by more elaborate headgear adorned with two long feathers. The central panel of the lacquer screen shows a tiger being hunted. Placed in the centre of the scene, the tiger is targeted by arrows coming from all directions. On the fourth panel the story is cut off into two parts. In the upper left third part of the panel we can see a magnificent man on horseback with two of his servants. The other line of the story leads us to the left bottom corner. At the beginning of the wooden bridge is Mulan, a woman disguised in male soldier's garb, bidding farewell and leaving for home with her attendants. The final element of the lacquer screen depicts the figures returning from the hunt. On the top we can see a gable-roofed tent opened diagonally to the left, towards the central focus of the composition. Two men are sitting on a blanket in the tent next to a three-legged incense-burner and charcoal-pan. Servants mill around outside, while behind the tent several flags indicate the high-ranking guests. The game-bag, a stag hanging on a pole is carried by two servants. The hunt was over, the participants relaxed.

Hunting was an important activity in the life of the Han Chinese emperors and aristocrats. A new dynasty came to the throne in the Middle Kingdom in the 17th century. The nomad Manchus occupied China in 1644. The success of this equestrian nation basically depended on their military power. Hunting was a more important activity for the nomad Manchus than for the former Han dynasties; it provided a golden opportunity to maintain the hardiness of the armed forces. Although they were organized in every season, the most important occasions were the events hold in spring and autumn. The name of the autumn hunt was *qiuxian* (秋獮), "autumn hunting", in the old Chinese tradition. It was organized north of the capital, far from the Great Wall (in Hebei Province), north of the summer resort of the Manchu Dynasty in Rehe (Jehol). The game preserve was called Mulan Resort and was the gathering point for the empire's military forces for hunting. It was

6 Fajcsák, G., "Az örömök kertje" Kínaiak, mandzsuk, mongolok Eszterházán. Az Esterházy-kastély hercegi lakk-kabinetje. [Garden of Pleasures. Chinese, Manchus and Mongols at Eszterháza. The prince's lacquer-cabinet in the Esterházy palace] Műemlékek Állami Gondnoksága, Budapest 2007. And: Fajcsák, G., Das Chinesische Lackkabinett im ungarischen Versailles, in: Welich, D. (ed.) China in Schloss und Garten. Chinoise Architekturen und Innenräume. Dresden, 2010, p. 106–120.

a very good game country and the participants hunted mainly for deer. The Chinese name Mulan came from the Manchu word 'muran' meaning belling or calling deer with a whistle. The Manchu word 'muran' was transliterated into Chinese as Mulan.[7] Deer-hunting had a special expression in the Manchu language, so the autumn hunting also had a new name in Chinese such as *mulan qiuxian* (木蘭秋獮), "hunting for deer in autumn".

Mulan hunting was regularly depicted by the court painters of Chinese Emperors (Kangxi, reigned 1662–1722; Qianlong, reigned 1736–1795; Jiaqing, reigned 1796–1820). Giuseppe Castiglione and two Chinese painters Jin Kun (active in the first half of the 18th century) and Ding Guanpeng (active ca. 1740-ca. 1760) guided the extended works of the most famous set of scrolls during the reign of Qianlong. Such scrolls were the four so-called Mulan scrolls (*Mulantu* 慕蘭圖),[8] now in the Chinese collection of the Musée Guimet in Paris.[9] Castiglione, Jin Kun and Ding Guanpeng and eight other Chinese painters (Wu Gui, Shi Xizhang, Chen Zhidao, Li Huilin, Cheng Liang, Ding Guanghe, Lu Zhan és Chen Yongjie) painted these historical scrolls. The first scroll depicted the route from Rehe to Mulan Resort, the second scroll showed the camp of tents, the third recorded preparations for hunting, and the last part depicted hunting scenes. The scrolls are not dated. However, based on the biographical data of their painters and the history of Mulan hunting, we can assume that the scrolls were not made before the middle of the 1740s, probably in the period between 1745 and 1755.

The famous Mulan hunt was depicted on one twelve-fold lacquer screen in the Esterházy Prince's cabinet. Mulan scrolls from the Chinese court's painting collection were the prototypes of the composition of this lacquer screen. It is known that Cantonese lacquer makers regularly worked in Beijing workshops, so it can be surmised that they selected these paintings as prototypes for their lacquerworks there. We can see the figure of Mulan on the screen twice: initially on the first panel when she is among the arrivals (she was depicted with two feathers on her headdress),[10] and the second time on the fourth panel when she takes her leave. The role of her figure can be interpreted as typical for Chinese pictorial art: the place depicted (here, the Mulan resort) is indicated by a homonym figure (in this case not only the place but the person's name is also written with the same Chinese characters). The name of Mulan referred to a well-known Chinese hero, the par-

7 Hou, C.-L./Pirazzoli, M., Les chasses d'automne de l'empereur Qianlong á Mulan, in: T'oung Pao, vol. 65, Leiden 1979, p. 15.

8 Chou, J./Brown, C., The Elegant Brush. Chinese Painting Under the Qianlong Emperor 1735–1795. Los Angeles 1985, p. 30–37.

9 The scrolls were donated to the Louvre by Henri Nicolas Frey in 1931. They were transferred to the Musée Guimet in 1945. See Hou, C.-L./Pirazzoli, M., Les chasses d'automne de l'empereur Qianlong á Mulan, in: T'oung Pao, vol. 65, Leiden 1979, p. 12.

10 Typical features of heroes appeared on the Chinese opera stage. Mulan was a well-known theatrical heroine of the Yuan period (1269–1368).

agon of the filial piety and fortitude. Her story is also well-known in Chinese poetry and theatre. Furthermore, Mulan was a nomadic hero, originating in the non-Han dynastic history of China dating to the 3rd and 4th centuries. Therefore she became a brilliant prefiguration of the great Manchu emperor Qianlong who also had strong nomadic contacts. A Chinese hunting scene was a typical iconographical programme for the lacquer screens made for export in Canton. This fact was underscored by some further similarities when the author found and reconstructed almost a dozen further lacquer screens illustrating the same subject. Among them there were 6- and 12-fold screens dating from the 18th century[11] and a 19th century European cabinet[12] decorated with Chinese door panels depicting the same hunting scenes.

DESCRIPTION AND RECONSTRUCTION OF THE LACQUER SCREENS WHICH ORIGINALLY COVERED THE WALLS OF THE PRINCESS' APARTMENT

Hunting scenes also appeared on screens which formerly decorated the apartment of Princess Maria Elisabeth Ungnad von Weissenwolff. Two rooms of the Princess' apartment were covered with Chinese lacquer screens. One of them was her drawing room which was an almost square-shaped corner room, 734 cm wide and 750 cm long. More lacquerware adorned the Princess' almost equally large east-facing bedroom, 727 cm wide and 750 cm long.

A 1792[13] inventory of Eszterháza Palace describes the rooms Nos. 27–28 as follows: "No. 27. Im Compagnie Zimmer: sind drey großen, vier schmalen und drey Ecktafeln von Indianischen Lacque, Schwarz und vergold…".[14] No. 28. Im Schlafzimmer: sind fünf großen und sechs kleinen dann zwei Ecktafeln von Indianischen Lacque schwarz und Gold…"[15]

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11 Musée des Tissus et des Arts décoratifs. Inv. no.: 24083. See Fajcsák, G., "Az örömök kertje" Kínaiak, mandzsuk, mongolok Eszterházán. Az Esterházy-kastély hercegi lakk-kabinetje. [Garden of Pleasures. Chinese, Manchus and Mongols at Eszterháza. The prince's lacquer-cabinet in the Esterházy palace] Műemlékek Állami Gondnoksága, Budapest 2007, p. 63. Victoria and Albert Museum, See Jourdain, M.-J./Soame, R., Chinese Export Art in the Eighteenth Century. Country Life Limited, London 1950, p. 79.

12 Museum of Applied Arts, Budapest, Inv. No.: 24.355.

13 Inventarium des Schlosses Eszterháza, 1792. Papierband 292 Folio. Forchtenstein/Fraknó Prot.6193.

14 "… No. 27. In the reception room: are three large, four narrow and three corner panels of Indian lacquer, black and gilt …"

14 "No. 28. In the bedroom are: five large and six small then two corner panels of Indian lacquer black and gold …" Inventarium des Schlosses Eszterháza, 1792. Papierband 292 Folio. Forchtenstein/Fraknó Prot.6193:26.

15 "… On the ground floor in the Reception Room No. 27. The wall with three large four small and three

Fig. 4. Archive photograph of the Princess' living room © Eszterháza Centre of Culture, Research and Festivals.

Fig. 5. Archive photograph of the Princess' bedroom © Eszterháza Centre of Culture, Research and Festivals.

A later Palace inventory from 1832 states: "… Zu ebener Erde im Gesellschaftzimmer No. 27. Die Wand mit drey großen vier schmalen und drey Ecktafeln von Holz ausgemacht und schwarz lakirt, die Leisten weiss lakirt und Gold geziert."[16] "Zu ebener Erde im Schlafzimmer Sr. Durchlaucht Fürsten No. 28. Die Wand mit fünf grossen und sechs kleinen, dann zwey Ecktafeln ausgemacht und schwarz lakirt und Gold geziert mit Bildhauer Arbeit weiss, lakirt und Gold eingefaßt."[17]

In an 1856 inventory we can read some important notes: "die vieux lacque Wand nach Wien abgegeben Dtto. 4. 875." [18] Below a date is noted, 1868. Therefore, we can suppose that in 1868 the lacquer panels of the Princess' apartment were transported to the Esterházy Palace at Wallner Street in Vienna.

Written sources (travel itineraries and inventories) mention only the numbers of the lacquer panels decorating the separate rooms; however the number of panels reflects the quantity of the framed items and not the real number of the screens. We have no details of either their former size or their original placement on the walls. Having examined

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corner panels made of wood and painted black, the mouldings painted white ornamented with gold …" Inventarium des Schlosses Eszterháza, 1792. Papierband 292 Folio. Forchtenstein/Fraknó Prot.6193:29.

16 "On the ground floor in the bedroom of his Highness the Prince no. 28. The wall with five large and sex small, then two corner panels decorated and painted in black and gold ornamented with carving painted white and gold…" Inventarium über die in dem Eszterházer Schlosse, Bagatelle und Theaters befondlichen Mobilien und effecten. Halblederband 426 Folio. Forchtenstein/Fraknó Prot.6075: 285.

17 "The vieux lacque wall delivered to Viena Dtto. 4.875." Inventarium über die in dem Eszterházer Schlosse, Bagatelle und Theaters befondlichen Mobilien und effecten. Halblederband 426 Folio. Frochenstein/Fraknó Prot.6075: 287.

18 Eszterháza inventárium 1856. Magyar Országos Levéltár (Hungarian National Archives) P. 112. 32. Inventarium über die in dem Esterházer Schloße und anderen herrschaftlichen Gebäuden vorhandenen Mobilien und Effecten No. 69.

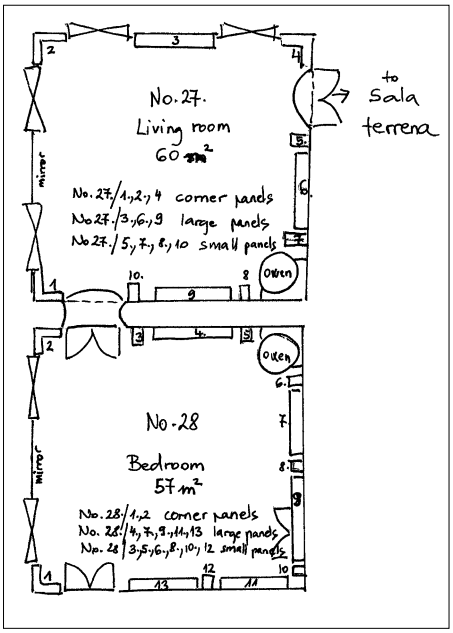

Fig. 6. Reconstruction of the wall covering in the Princess'apartment at Eszterháza room No. 27 (drawing room) and No. 28. (bedroom) © photo by G. Fajcsák.

archival photographs of the palace, taken in Eszterháza in the 1890s, we can reconstruct the former arrangement of the Chinese lacquer panels and describe their iconographical programme.

The walls previously covered with Chinese lacquer panels were later hung with wall-cloths mounted exactly the same way. The intention of the then-owners (Nicolaus Paul 1869–1920, and his wife Countess Margaret Cziráky 1874–1910) was to reconstruct the appearance of the famous 18th century interiors of Eszterháza. Therefore they tried to repeat the original arrangement and wall decorations, but used silk tapestries for covering the walls in the Princess' apartment, which had been originally been decorated with Chinese lacquer panels before 1868. "The walls are covered with white damask silk patterned with pink flower bunches in gilt frames made by the upholsterer Weber from Eisenstadt."[19] The author's research has revealed that in the 18th century three large lacquer screens had adorned the Princess' drawing room.

The six-part screens with gold lacquer decor on a black ground measure about 255 cm in height and 260 cm in overall width.[20] They were used on the western, northern and

19 Eszterháza és más kastélyok ingóságainak leltára. Magyar Országos Levéltár (Hungarian National Archives) P.112. 127.361/1.

20 For the structure of similar Chinese screens, see Bredenstein, I., Considerations Regarding the Restoration of a Chinese Lacquer Screen, in.: Kühlenthal, M. (ed.), Japanese and European Lacquerware.

southern walls probably without side panels. Two or three additional Chinese lacquer screens were used to enhance the three corners: each corner consisted of two pairs of panels framed in the same border. The four narrow lacquer panels mentioned by the inventories could have been displayed on the sides of the stove and on the inner sides of the two-folded doors: one on the western and one on the northern wall of the room. The bedroom of the Princess was originally decorated with five six-part Chinese lacquer screens (see Fig. 6). Two pairs of tables were framed on the northern and on the western walls, one large screen was embedded on the southern wall. The eastern wall of the bedroom was probably decorated with a large mirror. The narrower panels were framed between the large screens. A pair of narrow panels was placed on the northern and on the western walls between two large screens. Two pairs of additional narrow panels were framed on the southern wall and on the western wall on the sides of the large screens (see Fig. 6).

LACQUER PANELS IN THE ESTERHÁZY PALACE AT THE WALLNER STREET, VIENNA, AUSTRIA

In the last quarter of the 19th century a "new" Vieux-Laque Salon was built in Vienna.

The floor plan of the Esterházy palace in the Wallner Street shows the central location of the room[21] on the main route of the salons. Chinese lacquer screen panels were cut into the new frames of this salon. New frames were different from the former *boiseries* in the Princess' cabinet at Eszterháza. In 1997 Eva Maria Höhle, at that time the conservator general of the Bundesdenkmalamt, responsible for the works at Wallner Street Palace wrote: "Besonders Interesse verdient das angrenzte Vieux-lacque-Zimmer (Raum Nr. 1121) Allem Anschein nach stammt das Interieur diese Raumes aus zwei verschiedenen Ausstattungsperioden. Der Deckenstuck ist noch in der Mitte des 18. Jahrhunderts entstanden, und auch die Türlaibungen und Rahmungen sind offensichtlich älter als die Holzpaneele, in denen die Lacktafeln eingelassen sind."[22]

Adoption, Adaptation, Conservation. Deutsch-Japanisches Forschungsprojekt zur Untersuchung und Restaurierung historischer Lacke, gefördert durch das Bundesministerium für Bildung, Wissenschaft, Forschung und Technologie, 2000, p. 560.

21 Rizzi, W. G., Zur Baugeschichte des Palais Esterházy in Wien, Wallnerstraße 4, in: Bericht über die Revitalisierung des Palais Esterházy. Wien, 1997, p. 22, Fig.12.

22 "Of particular interest is the adjoining vieux-lacque room (Room no. 1121), to all appearances the interior of the room was composed during two different decorative phases. The ceiling stucco is from the mid–18th century, and the door panels and frames seem to be older thatn the wooden panels into which the lacquer panels have been inserted." Höhle, E. M., Zur Restaurierung der Beletage im Palais Esterházy in der Wallnerstraße, in: Bericht über die Revitalisierung des Palais Esterházy. Wien, 1997, p. 42.

Fig. 7. Vieux-laque salon at Wallner Strasse,Vienna © photo by G. Fajcsák.

Based on the written sources, it can be assumed that the Vieux-Laque Salon of the Vienna Esterházy Palace on Wallner Street was refurbished around the 1870s, but to date no evidence for the exact date has been found.[23] Whole Chinese lacquer screens cover the walls, in total 35 single panels were mounted into frames. It is possible to imagine how these lacquer panels were cut down as needed to fit the actual sizes of the walls (the height of the panels is around 200 cm). The original composition of the screens was not of any interest, what mattered was a homogeneous wall surface decorated with lacquer panels. It is therefore not surprising to find a fishing scene or palaces in a garden adjacent to a hunting panel. The smaller panels above the doors of the salon are also fragments from the larger panels (altogether 15 fragments were used)[24] of Chinese screens. Following the iconographical programme of the screens it can be realized that they have close similarity to the Mulan hunting scene described in the Prince's lacquer cabinet. Although the hunting story which is depicted on the smaller-scale surface has been condensed, all the important elements can be clearly identified.

Due to the smaller format of the scene, the composition is also less detailed. Each screen has an originally four-part but now only three part central composition where the arrival for the hunt appears on the right panel. The central panel depicts a tent where resting hunters are entertaining themselves: noble Manchus are sitting on a blanket and hold a long pipe. The left part of the scene shows hunters and their servants. In the Vieux-Laque Salon in Vienna a total of nine panels depict a tent with seated hunters. Accordingly, nine panels with hunting scenes originate from the former apartment of the Princess in Eszterháza. Further lacquer screens decorated with fishing scenes or garden palaces were also originally part of the former wall decoration in Eszterháza, but there were far fewer pieces (there are two), than those of the hunting scenes (nine).

23 See Dávid, F., Eszterháza belső terei, in: Ars Hungarica, vol. 1, Budapest 2000, p. 78; who cited Perger R., Das Palais Esterházy in der Wallnerstrasse zu Wien, Wien 1944, Abb. 12.

24 Miklin–Kniefacz, S., Zur Restaurierung der chinesischen Lacktafeln des "Japanischen Saals" im Palais Esterházy, in: Bericht über die Revitalisierung des Palais Esterházy. Wien, 1997, p. 51–56.

Fig. 8 a. Panels of the hunting scenes with tents in Vienna © photo by G. Fajcsák.

Fig. 8 b. Lacquer panel of the hunting scene with a tent in Eszterháza © Gyula Forster National Centre for Cultural Heritage; Eszterháza Centre of Culture, Research and Festivals Management /photo by M. Sulyok.

The composition of the export lacquer screens should also be noted, considering that the large twelve-fold screens of the Prince's apartment can be divided into two six-fold parts. In each of the six-fold segments it is possible to recognize a tent and typical hunting scenes around the central motif. Based on these findings it can be assumed that the smaller six-part Chinese lacquer scenes used in the Princess's apartment derive from the larger composition of the entire Mulan lacquer panel. This also explains the significant difference in their prices (1000 Gulden for the large screens and 1000 Thaler for the smaller, a ratio of almost 10 to 1).

From the above mentioned examples it can be seen that the Chinese lacquer screens which decorated the Prince' and Princess' apartments at Eszterháza were very similar. Their iconographical programme recalls the same Chinese hunting scene prototype.

Fig. 9. Eszterháza, north facade © Eszterháza Centre of Culture, Research and Festivals/photo by P. Csillag, T. Opitz.

However, in European interiors screens were used in various forms within the same buildings. In the Prince's lacquer cabinet, cropped panels were framed by *boiseries*, in the Princess' apartment two rooms were covered with Chinese lacquer screens, which followed an earlier fashion of larger framed segments to create a homogenous surface.[25] The whole central units of the screens (without their borders) were inserted into the walls. At least eleven (probably eleven six-part) screens were framed in the Princess's apartment in Eszterháza. Their sizes were half of those in the Prince's apartment and their quality was also less refined. Written sources mention various numbers of lacquer panels in the apartment of the Princess. One should evaluate these sources with special care, since there is not enough written documentation to define the exact number of screens.

The Mulan or hunting screens decorating European Rococo palaces fit these interiors brilliantly. Hunting was one of the most highly appreciated amusements of aristocrats like Nicolaus Esterházy. Both the lacquer cabinets and entire palaces imitated a fairytale picture of an unknown world, the wondrous Cathay, and the screens served as illustrations of the utopian China image of the French philosophers. These interiors helped to visualise a world far from a place and time which was the ideal site of entertainment, and provided the aristocracy an opportunity to step outside of Europe; in this sense also gave the "Splendid" Nicolaus Eszterházyan outlet to share his, magnificent dream as it took shape in his palace at Eszterháza.

25 Württemberg, P., Herzog von, *Das Lackkabinett im deutschen Schloßbau. Zur Chinarezeption im 17. und 18. Jahrhundert*. Bern, 1998, p. 119.

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ANTHONY WELLS-COLE

Amalia van Solm's Lost Japanese Lacquer Bed-Rail: Form and Decoration

ABSTRACT

The apartment that Princess Amalia van Solms created for her use in her new summer retreat, the Huis ten Bosch, outside The Hague in the 1640s has been said to include one of the earliest Oriental-style interiors in Europe, the inspiration for such interiors later in the 17th century and beyond. Alterations to these rooms following the French invasion of the Netherlands in the 1790s left none of their architectural or decorative features intact, so that the only survivals are the overmantel paintings which have now been dispersed amongst European museums and galleries. However, components of the lacquer bed-rail from Amalia's bedchamber which had attracted the attention of numerous visitors were first recognised by Oliver Impey and John Whitehead in the 1990s embellishing pieces of 19th century French and English furniture. This paper outlines the steps by which the probable form of the bed-rail can be reconstructed and focuses on the surviving decoration, which provides an insight into how such a substantial object was made. It ends with a plea to specialists in European interiors and Japanese lacquer for further information about components or sections of Amalia van Solms's bedrail that may survive unrecognised in European or American contexts.

* * *

During the 1640s Princess Amalia van Solms built herself a new summer retreat outside The Hague, the Huis ten Bosch. Her private apartment included a small cabinet room panelled with Japanese lacquer, which may have been "one of the earliest if not the earliest"[1] Oriental-style interior in Europe. However, the Portuguese and Spanish had reached Japan before the Dutch and could have incorporated elements of Japanese lacquer into their interiors. Be that as it may, most of the interiors of the Huis ten Bosch were substantially remodelled in 1806/7, leaving almost no original architectural feature of her apartment intact. However, evidence discovered during the past decade has made it possible to envisage the probable appearance of her apartment's single most spectacular

1 Scheurleer, L., De woonvertrekken in Amalia's Huis in het Bosch, in: Oud Holland, vol. 84, 1969, p. 29–66.

object, her unique Japanese lacquer bed-rail. Amalia van Solms was the daughter of a minor German nobleman and had served as lady-in-waiting to Elizabeth Queen of Bohemia, the daughter of James I King of England. Amalia married the Stadholder Frederik Hendrik Prince of Orange in 1625.[2]

It is anticipated that a detailed discussion of the various steps by which the probable form of this lost Japanese lacquer bed-rail could be envisioned will appear at a future date. Nonetheless, there are at least a half-dozen relevant pieces of documentary evidence, plus the physical evidence provided by a single piece of 19th century furniture, that makes a virtual reconstruction possible. The varied decoration of the bed-rail which provides valuable information about how this unique object was made will also be considered.

Eschewing an official commission through the Dutch East India Company, which tried to enforce a monopoly of trade with Japan, Amalia may have approached Philips Lucasz, the Director-General of the Dutch factory in Japan. He left Amsterdam for the Far-East in May 1635, probably taking models of the columns to be replicated and decorated in Japan. Five years later the first of two consignments of her Japanese lacquer bed-rail was unloaded from the VOC ship *Salamander* in Amsterdam in August 1641. The two consignments were valued at the huge sum of about *fl.*2,600 or 912 *tael*[3], equivalent to around €500,000 at today's prices.

Amalia may have envisaged the bed-rail for one of her other palaces in The Hague but when the Huis ten Bosch (designed by Pieter Post and begun in 1645) was nearing completion in about 1647 she installed in it her bedchamber there, to separate the private space around her bed from the semi-public space outside it – where courtiers might gather for an audience with her. Bed-rails had been in occasional use in France from about 1600 and developed three different forms: a balustrade stretching right across the bedchamber; a rail surrounding the bed on three sides; and a rail fronting a bed-alcove. The documentary evidence makes it clear which sort Amalia's bed-rail was. The most crucial piece of evidence is the earliest:

1) The Inventory of 1654: "672, Een cierlijcke Indiaenesche Balustrade met twee deuren hebbende ses verdeelingen meest van acht Pilasters tusschen eene wat grooter ondersteuijnt met ses ysere stijlen vergult, ende geschildert, als de voorschr. Balustrade";

2 Their grandson Willem married Mary daughter of James II of England in 1677, and her subsequent familiarity with Amalia's interiors at the Huis ten Bosch – which she adapted to her own taste, leaving the lacquer intact – certainly influenced the work she commissioned at Hampton Court located on the Thames west of London.

3 Impey, O./Jörg, C., Japanese Export Lacquer1580–1850, Amsterdam 2005, p. 41. Viallé, C., Two boxes and two balustrades: private orders for fine Japanese export lacquer, in: Rivers, S./Faulkner, R./Pretzel, B. (eds.), East Asian Lacquer: Material Culture, Science and Conservation, London 2011, pp. 26–30.

And this is the least ambiguous translation (An elegant Indian balustrade with two doors, having six compartments mostly with eight pilasters between one a bit larger, supported by six iron struts gilded and painted, as the aforementioned balustrade).

Perhaps conceived for a different, rather larger interior, not all of it was used in the Huis ten Bosch as the inventory makes clear: "No. 807: Vijff pijlaren met haer onderste, ende bovenste overgeschote vande balustrade van haer Hoogsheijts slaepcamer."; (Five pillars with the lower and the upper part, the remainder of the balustrade of her highness's bedchamber).

2) John Farrington's account, of 1710: "… the Chamber of State is furnished with extraordinary fine Hangings of very beautifull colours, wrought with a needle and the bed of the same, which stands within banisters finely carved and gilt instead of an alcove."[4]

Combined with 3) the account of some anonymous French travellers in 1789: "… au pied du lit d'un bout de la chambre à l'autre [l?]igne une balustrade en bois du Japon …"; (At the foot of the bed from one side of the room to the other is a balustrade of Japanese wood. . .) – this makes it certain that Amalia's balustrade simply spanned her bedchamber from side to side.

And 4) the catalogue compiled after French troops had invaded The Netherlands, requisitioned the Huis ten Bosch and put its contents – including the bed-rail – up for sale in 1797 records the dimensions of the bed-rail: Lot 162: "A costly Chinese lacquered Fence inlaid with Pearlshell, length 28, height 2½ feet with its Plinth."[5]

In the event, the bed-rail was withdrawn from the sale but not before it had suffered some significant damage, as someone noted: 5) Memo dated February 1798 in the Archive of the Nassause Domeinen: "in de slaapkamer, een verlakt hekje, waar van by de verknoping [sic] vier knoppen waaren afgestooten"; (A lacquered railing, from which at the sale four knobs were knocked off).

After 1797/8 it completely disappeared from view for two centuries until the distinguished champion of Japanese lacquer, Oliver Impey of the Ashmolean Museum in Oxford, and his friend and collaborator John Whitehead identified what they believed were columns from Amalia's bed-rail incorporated into four pieces of 19th century French and English furniture: an English-made secretaire, two French cabinets, and an upright piano made in London in 1829 for Isabella, Lady Hertford, owner of the historic country house Temple Newsam near Leeds, now a museum where the writer was senior curator. From an 1894 photograph I discovered that the secretaire had also been at Temple Newsam in the 19th century and, it being for sale in Paris at that very time, I was eventually able

4 Farrington, J., Account of a journey through Holland, Friesland, etc. in letters to N. H., British Library, Add. MSS 15,570, 1710, p. 17.

5 Lugt, F., Répertoire des ventes publiques intéressant de l'art ou la curiosité 1 (1600–1825), The Hague 1938, No 5641.

Fig. 1. The Temple Newsam secretaire, Japanese and Chinese lacquer assembled perhaps in the 1820s, © Leeds Museums and Galleries, Temple Newsam House/photo by N. Taylor.

Fig. 2. Virtual reconstruction of Amalia van Solms's bed-rail, © photo by A. Wells-Cole, October 2012.

to buy it back for the house in 2005. This curious-looking secretaire has all the physical evidence required to combine with the documents mentioned above and enables a reconstruction to be made.

It has columns of two different diameters, thick and thin. The columns now part of the two French cabinets are thin ones, more or less in their original form, 52,5 cm high; the piano has only thick columns (Explaining why there are columns of two different diameters was to prove a real problem, now overcome, see below). The secretaire also has a base with six bun feet, four entirely of Japanese lacquer, two European attached to Japanese lacquer blocks. The four were once ball finials from Amalia's bed-rail, the two European ones replaced two of the other four Japanese knobs which an eye-witness recorded being knocked off at the sale in The Hague in 1797.

The moulding re-used by the 19th century cabinet-maker to separate the upper cabinet from the lower has decoration under the lip on the front; its top surface turned out to have – where it was concealed by the upper cabinet – a series of plugged holes with concentric circular scars, into which the thinner columns of the bed-rail had been dowelled, at 12,5 cm centres – the thicker columns have square rather than circular bases. This moulding must have been the upper element of the bed-rail's plinth, whose lower part was probably turned upside down to form the cornice of the upper cabinet.

After a false start in 2009/10 I realised that simple mathematics could tell me how many columns were required to span Amalia's bedchamber, which Peter Post's floor plan suggested was 7,72 m wide. With columns at 12,5 cm centres, 62 columns would do the trick. I also thought that the 1654 inventory's description "Een cierlijcke Indiaenesche Balustrade met twee deuren hebbende ses verdeelingen meest van acht Pilasters tusschen eene wat grooter …"; (An elegant Indian balustrade with two doors, having six compartments mostly with eight pilasters between one a bit larger. . .) could mean that the eight columns of a compartment could be flanked by a thicker column. A 1630s English communion rail at Woodbury near Exeter in Devon, and a rather later Dutch screen in the church at Kimswerd near Franeker are analogous and provide a purpose for the thicker columns. So, in October 2012 the writer produced a virtual reconstruction of Amalia's bed-rail – "with two doors and six compartments mostly with eight pilasters between one a bit larger" and persuaded a former colleague, Ian Fraser, to construct it, to see whether it actually worked.

Fig. 3. A small length of the bed-rail, © I. Fraser, October 2012.

This left unexplained only the "Vijff pijlaren met haer onderste, ende bovenste overgeschote vande balustrade van haer Hoogsheijts slaepcamer"; (Five pillars with the lower and the upper part, the remainder of the balustrade of her highness's bedchamber). It is of course possible that the width of Amalia's bedchamber was not exactly 7.72 m – indeed, it has been calculated that it was as much as 8.8 m wide[6], which would have required 70 columns – but the required measurement could easily be fulfilled by adding columns to the outermost compartments, leaving these five columns unused. Anyway, there must have been at least 67 columns each with four different scenes (67 x 4 = 268), more than 100 scenes on the plinth, around a dozen on the blocks under the knob finials and others on the hand-rail. So there were probably around 400 different scenes. All this decoration had to be executed in not much more than 36 months, a huge task. How was it achieved?

The work must have been divided between workmen, surely specialising in different kinds of decoration. Straightforward and repetitive work such as the *nashiji* (pear skin) grounds and the chequered bands and ogival frames (of two different kinds) on the columns were presumably done by less skilled workmen or apprentices. The geometrical borders on some components mark greater degree of sophistication and are inlaid with mother-of-pearl, implying an enhanced level of skill, although the pattern is repetitive (see Fig. 9).

6 Impey, O./Jörg, C., Japanese Export Lacquer1580–1850, Amsterdam 2005, p. 70, n.111.

Fig. 5. Panel from the cabinet formerly at Galerie Camoin Demachy, Paris: a man leads an ox around, © photo by E. Godfrey.

Fig. 4. Detail of a column from the Temple Newsam piano, a man rides an ox and plays the flute, © Leeds Museums and Galleries, Temple Newsam House/photo by N. Taylor.

The scenes contained in ogival frames display great variety. Some feature birds, a kingfisher, parakeet, bird of prey; others depict plants and flowers, poppies, chrysanthemums, pomegranates and what may be tree peonies; and there are generic landscapes of the kind found on much Japanese lacquer made for export. There are also highly detailed figurative scenes whose meaning, if any, is rarely easy to interpret. However, one for certain has its origins in Zen Buddhism: while riding an ox, a man plays the flute.

This is an illustration of a scene from *The Ten Ox-Herding Pictures* which illustrate the stages through which a person has to pass to achieve self-knowledge: the struggle is over, the man no longer concerned with gain and loss. This displays a striking resemblance to the composition painted by Karasumaru Mitsuhiro on a scroll in Kyoto c.1634 – only a year or two before Amalia's balustrade began to be decorated there. The scroll is now in the Metropolitan Museum of Art in New York.[7] Another scene, this time circular and inset into the frieze of one of the 19th-century French cabinets, illustrates an earlier stage

7 O'Neill, J. P. (ed.), Recent Acquisitions: A Selection 1985–1986, The Metropolitan Museum of Art , New York 1986.142. The possibility was suggested to me by Miyeko Murase, of the Metropolitan Museum of Art in New York.

Fig. 6. A cockerel stands on a brushwood fence, detail of a column from the Temple Newsam piano, © Leeds Museums and Galleries, Temple Newsam House/photo by N. Taylor.

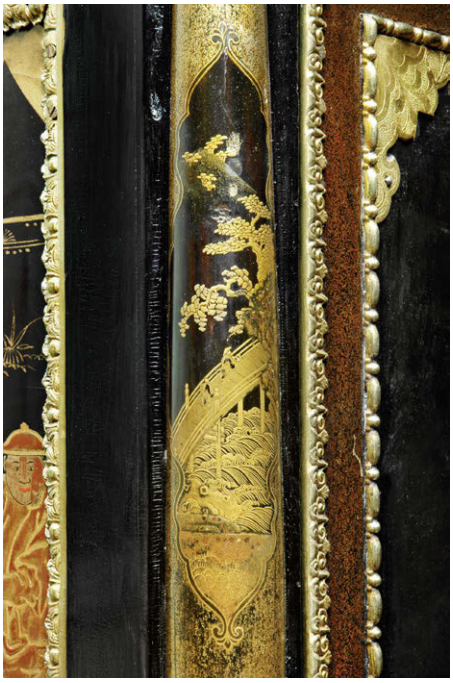

Fig. 7. Two people cross a river, detail of a column on the Temple Newsam secretaire, © Leeds Museums and Galleries, Temple Newsam House/photo by N. Taylor.

– generally the fourth or fifth – of the path to enlightenment. In it, a man leads the ox by a ring in its nose, "facing the ox round".

The artistry of this plaque is of a noticeably different order from that of the man riding the ox: there are coloured metal spangles in the lacquer and elaborately shaped pearl-shell inlay. It is possible that this was once part of the decoration of the now-missing hand-rail of Amalia's balustrade. If so, the differences in format and sophistication suggest that these two Zen Buddhist scenes were part of two separate series, and would account for twenty of the 400 or more.

Some of the figurative scenes may demonstrate the characteristic Japanese taste for using a single motif to suggest to the viewer a famous legend or literary episode, which would have been familiar to any educated Japanese – much as a Western artist might use the instruments of the Passion to allude to the Crucifixion. For instance, the cockerel standing on a brushwood fence at the rustic gateway to a garden with a flowering plum

Fig. 8. A fisherman in his shelter, detail of a column on the cabinet formerly at Galerie Camoin Demachy, Paris, © photo by A. Wells-Cole.

Fig. 9. Arm-wrestling, detail of a column on the Temple Newsam secretaire, © Leeds Museums and Galleries, Temple Newsam House/photo by N. Taylor.

tree may allude to Episode 14 of the *Tales of Ise* – a 10th century literary work telling the many amorous adventures of a young man.

This episode describes how he found himself in the provinces where he came across a country girl unaccustomed to meeting people from the capital. She fell in love with him and, taking pity on her, he slept with her – but left in the middle of the night. She sent him this poem:

"When daylight comes
I shall toss him in the cistern
That miserable rooster
Who crows too soon
And drives my lover away."

When he sent a poem in response she was overjoyed, thinking he must love her after all.

This is one of three scenes which have been thought to allude obliquely to episodes in the *Tales of Ise.* Similarly, it is tempting to see in the scene in which two figures cross a bridge over a raging torrent, with a wooded mountain in the background, a conflation of two scenes from the *Ōmi Hakkei* – the Seta Bridge and Evening Snow on Mount Hira.

And the image of the fisherman who sits patiently in his shelter suggested to a present-day educated Japanese (an Assistant Curator of Japanese Books in the British Library) the story of *Urashima Taro*, the good fisherman in a collection of folklore named *Otui Zoshi*.

Then there is the distinctive scene showing arm-wrestling in progress.

Is this simply a portrayal of the kind of outdoor activities that appear on painted screens depicting "Scenes in and around the Capital". Or might it allude to an episode from *Gikeiki* (The Chronicle of Yoshitsune, sequel to *Heiji Monogatari*), illustrated in a woodcut published sometime after 1624 in an eight-volume saga of heroism and adventure, with more than 100 coloured woodcut illustrations?

There can be no doubt whatever about one of the scenes on a column on the secretaire, a most fortuitous survival indeed. Here three warriors with bows and arrows and flares enter the frame from the bottom right; above, a man and a girl hide in some grasses.

This is an episode known as Musashi Plain in *The Tales of Ise*, the 10th century literary work mentioned above. The story goes that the man – the hero of the book – abducts a girl and hides with her in a field. Her father dispatches soldiers to flush them out. When the fugitives are apprehended, the girl addresses their pursuers with a poem:

"Do not set fire today
To Musashi Plain,
For my beloved husband
Is hidden here
And so am I."

Although the present writer has researched and published extensively on the influence of prints on the decorative arts in Europe for 35 years, it was surprising to discover that the use of prints by creative artists as helpful shortcuts when composing their subjects was matched on the opposite side of the world at just the same time. This scene was adapted from one of 49 woodcuts in the 1608 Saga-bon edition of this classic text, published in Kyoto, which became so popular that it was reprinted no fewer than nine times in the next two years. And it was in Kyoto that the bed-rail was also made. In fact this is believed to be the earliest example identified so far of Japanese lacquer deriving from a print source, a fortuitous survival indeed. Can any conclusions be drawn from this

Fig. 10. Three warriors search for a man and a girl, detail of a column on the Temple Newsam secretaire, © Leeds Museums and Galleries, Temple Newsam House/photo by N. Taylor.

instance? The most ambitious suggestion is that, to simplify and speed up their work on this unprecedented commission, the lacquerers might have adapted all 49 woodcuts in the Saga-bon publication. Such a stratagem would have given them a head-start on this enormous task. The scenes that perhaps allude to the *Tiles of Ise* rather adapt them from the printed source might then belong to a second series which, with the first, would account for almost a quarter of the total required.

Two conclusions from this brief survey of the surviving decoration from Amalia's bed-rail are certain. First, there was no single over-arching iconological programme and, secondly, more components must be found if the bed-rail is to be better understood. Even then these and other questions will remain. How did Amalia van Solms come to want a bed-rail? Who designed it? Peter Post perhaps? Did Amalia take a particular interest in the Japanese export lacquer that the VOC imported into The Netherlands? Something inspired her to commission this unique masterpiece, probably from the very workshop that produced the finest examples of Japanese export lacquer, the two chests associated with Cardinal Mazarin, one in the V&A the other now in the Rijksmuseum in Amsterdam, which acquired it when it reappeared in June 2013, 72 years after it was last seen. Could Amalia have had a hand in selecting its decoration? This seems unlikely. What was the role of Philips Lucasz, the Director of the Dutch factory in Japan? What happened to

the bed-rail between 1797 when it was withdrawn from sale in The Hague and the 1990s when components began to be recognised? How did it come to Paris? Who built its columns into pieces of French and English furniture? What has happened to the rest of it?

If, as a consequence of its sheer size, the bed-rail understandably falls short of these masterpieces in quality, it makes up for this in the variety and interest of its decoration, and in the near-miraculous survival of its constituent parts. From the little that has near-miraculously survived we can begin to understand Thomas Nugent's rapturous response when he saw it in 1749: "There is a rail of rich *India* japan work, which runs along the foot of the princess's bed, and is inlaid with mother of pearl, and other precious stones, that cast a twinkling light, like the stars in a dark night."[8]

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8 Nugent, T., The Grand Tour, London 1749, p. 122.

HELLA HUBER

The "Japanese Cabinet" in the Old Hermitage Palace Bayreuth

ABSTRACT

The Bavarian Department of State-owned Palaces, Gardens and Lakes, as successor of the administrative department at the court of the Bavarian electors and kings, is responsible for magnificent East Asian cabinets in the courtly residences at Munich and Bayreuth. The most remarkable of them, the "Japanese Cabinet" of Margravine Wilhelmine of Bayreuth, dated 1739, is a small but splendidly decorated room. It is furnished with a polychrome panelling decorated in bas-relief. The main panels show courtly scenes bordered by ornamental motives. As mentioned in the memoires of Wilhelmine in 1744, the "Japanese panelling" was a present from her brother, Friedrich II of Prussia. Only four panels were thought to be original Far Eastern works in previous publications. The added imitations are supposed to be inspired by and manufactured with the help of the Margravine herself. Prior to the conservation work carried out at the Old Palace between 2005 and 2009, the cabinet was investigated by the Conservation Centre of the Palace Department. Technical examinations of the panels, their composition and the layers of paint enabled the conservator to discover further original, probably Chinese panels, and to distinguish them clearly from the German Chinese-style panels. It is likely that the Asian panels were originally part of a screen, which could be reconstructed using digital photographs. Pigment analysis and X-ray examination support this reconstruction. However, because of the unusual images and lacquer-technique, it has so far not been possible to determine the regional provenance and exact date of the panels. The paper explores the significant differences between the Far Eastern screen panels and the German imitations executed with great artistic skill. The historical modifications of the cabinets panels and previous conservation treatments are summarised briefly. The recent conservation included the removal of pesticides, the setting up of a climate control system and further preventive conservation measures.

* * *

On July 3rd, 1735 Margrave Friedrich von Brandenburg-Bayreuth presented his wife Wilhelmine, *née* Princess of Brandenburg–Prussia and the older Sister of Friedrich II (Frederick the Great), with the Hermitage Palace of Bayreuth on the occasion of her

26th birthday. The ambitious Margravine committed herself immediately to the plan of rebuilding the palace and its garden as a representative summer residence. Since its construction at the beginning of the 18th century the building and the park had been used as a hermitage for the Margrave's private order, where he oversaw "retreats" to the simple life. Two uniquely decorated rooms, the so-called "Chinese Mirror-Cabinet" at the back of the building, used as a study, and the "Japanese Cabinet" at the east end of the main wing reveal Wilhelmine's special interest in Far Eastern art and culture.

The Margravine described the cabinet in her memoirs in 1744: "Ensuite vient un petit cabinet, dont la boiserie est du Japon; mon frère m'en avoit fait présent; elle avoit coûté un argent infini, et je crois que c'est l'unique de cette espèce qui ait paru en Europe: on l'avoit donnée à mon frère pour telle; le fond en est d'or grené et toutes les figures sont en relief; le plafond, les trumeaux et tout ce qu'il y a dans ce cabinet s'accorde avec cette boiserie; tous ceux qui l'ont vu en ont été charmés."[1]

The panelling of colour-lacquered boards mentioned in the paragraph above decorates the walls of the intimate, about 18 m² sized room. The "Indian style" pedestal table is part of the Margravine's original furnishing as are the sculptured and lacquered "Indian" mirror frames between the windows and above the fireplace.[2] The red-lacquered dado of the panelling is ornamented with gilded flower tendrils and little mirrors set in wreaths. Black-framed, blue cassettes with rhombus-shaped reserves are attached. The reserves show arrangements of flowers and plants in landscapes, which are represented by interchangeable pieces of cliffs and of stretches of water. Arranged in two tiers in the middle area of the walls and over the doors, the main panels are adorned with 16 polychrome genre paintings of various subjects including palaces and pavilions set in mostly hilly landscapes. East Asian figures, sometimes arranged in groups, are shown at court, going hunting or boating.

Red-lacquered panels decorated with small polychrome animals – lions, dragons and cranes – set in golden frames link the dado and the ceiling moulding. Separating the two tiers of the main panelling are small panels of red lacquer decorated with golden foliage and wreaths with mirrors. In addition to the above mentioned panels there are further segments with similar ornamentation at the south wall flanked by others depict-

1 "Then comes a little cabinet, of which the wood paneling is from Japan; my brother made a gift of it to me; it cost a huge sum, and I think it is the only one of its kind which has appeared in Europe: that is what one told my brother about it; the background is in grainy gold and all the figures are in relief; the ceiling, the jambs and everything in this cabinet matches with the paneling; and all those who have seen it are enchanted." Wilhelmine Friederike Sophie von Brandenburg-Bayreuth, Markgräfin, Mémoires de Frédérique Sophie Wilhlmine, Margrave de Bareith, Soeur de Frédéric le Grand depuis l'année 1706 jusqu'à 1742; écrits de sa main, Bd. 2. Brunswick 1845, p. 248.

2 Staatsarchiv Bamberg, Inv.: C 9 IV, Nr. 2150 (1751). Quoted by: Turek, P./Achternkamp, S., Bayreuth Neues Schloss und Altes Schloss Eremitage, Abschlussdokumentation, unpublished 2009/2010.

Fig. 1. "Japanese Cabinet" looking east, © photo by A. Bunz 2009.

ing everyday objects against a green background. Narrow pilaster strips accentuate the vertical structure of the panelling. In front of the partial gilded cornice with concave pink profiles nine sculptures of animals and mythical creatures are mounted to enhance the three-dimensional effect. The window embrasures and the inside shutters as well as the door-panels are adorned with comparable motifs like buildings, plants, flowers, birds, rivers and lakes. These are likewise surrounded by the red-lacquered frames with gilded flower tendrils.

All surfaces of the wall panelling, the door panels, the embrasures and the shutters are decorated in gilded or polychrome lacquered bas-relief. As well as the glass mirrors, various other materials such as soapstone, wax and paper were used to create the designs. The stylistic conformity and the expressive colouring of the panels convey the convincing unity of this splendid cabinet. In this feature the cabinet differs from other East Asian cabinets in European residences, which often incorporate Far Eastern panels in contrast to the typical Baroque or Rococo interior design. This cohesion, together with the high quality of the panels, the unconventional subjects depicted and the unusual techniques has continued to challenge researchers, resulting in diverse assessments of the materials[3], the provenance and the artistic authorship of the lacquered panels.

PROVENANCE OF THE LACQUERED PANELS — CURRENT STATE OF RESEARCH

The historic inventories are of little help in providing definitive answers. The first inventory, drawn up 1751 during the Margravine's lifetime, described the room and its furnishings as "Indian (work)"[4], then a term commonly used to describe exotic or Asian materials and products. Besides Chinese objects and four English fauteuils, the inventory made upon the Margravine's death in 1758 mentioned "in the lacquered cabinet four panels of old lacquer, the others of Her Royal Highness own work".[5] Inventories made after 1785 termed the room as a "Japanese Cabinet" and record panelling of colourful painted Jap-

3 Füssel, J. M., Unser Tagbuch oder Erfahrungen und Bemerkungen eines Hofmeisters und seiner Zöglinge auf einer Reise durch einen großen Theil des fränkischen Kreises nach Carlsbad und durch Bayern und Passau nach Linz, vol. 2, Erlangen 1788, p. 45, describes the decoration as Japanese wallpapers; Herrmann, F., Eremitage sonst und jetzt, Bayreuth 1901, as square porcelain plaques attached to the wooden ground.

4 Staatsarchiv Bamberg, Inv.: C 9 IV, Nr. 2150 (1751). Quoted by: Turek, P./Achternkamp, S., Bayreuth Neues Schloss und Altes Schloss Eremitage, Abschlussdokumentation, unpublished 2009/2010

5 Staatsarchiv Bamberg, Titulus XXV (1758). Quoted by: Turek, P./Achternkamp, S., Bayreuth Neues Schloss und Altes Schloss Eremitage, Abschlussdokumentation, unpublished 2009/2010.

anese work besides mainly Chinese exhibits.[6] The Chinese figures made of gypsum and soapstone led the cabinet to be described as "Chinese work" for the first time in 1813.[7]

Art-historical publications on Wilhelmine's cabinet use the historic sources in various ways. Referring to the passage in her memoirs the entire panelling was described as a present of Friedrich II.[8] In the 1758 inventory, some panels were even described as works by the Margravine herself.[9] Other panels without exact attribution are described as a gift of Friedrich II, as well as being Chinese or Japanese.[10] Because of the high number and the large surface area of panels to be imitated, the Margravine's contribution to the work was likely to be limited to her applying small areas of paint or to designing the segments.[11] Often the panels and their technique are described as leaves of a c*oromandel*-lacquer-screen.[12] However, this definition is incorrect, because in contrast to, the raised relief designs on the Bayreuth panels, *coromandel*-lacquer is characterised by motifs carved or cut into the previously prepared *urushi*-lacquered ground. The subsequent polychrome paint and partial gilding are exclusively limited to the carved or cut areas of the polished, mostly black, lacquered surfaces.[13]

Later publications described the four main paintings on the south wall as Far Eastern works.[14] Often only the two paintings at eye level were regarded as Asian.[15] Based on more

6 Staatsarchiv Bamberg, Inv. C9 IV Nr. 2151(1785), Inv. C9 IV Nr. 2153 (1789), Inv. C9 IV Nr. 2154 (1798). Quoted by: Turek, P./Achternkamp, S., Bayreuth Neues Schloss und Altes Schloss Eremitage, Abschlussdokumentation, unpublished 2009/2010.

7 BSV, Inv.: Nr. 396 (1813). Quoted by: Turek, P./Achternkamp, S., Bayreuth Neues Schloss und Altes Schloss Eremitage, Abschlussdokumentation, unpublished 2009/2010.

8 Hofmann, F. H., Die Kunst am Hofe der Markgrafen von Brandenburg: Fränkische Linie, Strassburg 1901, p. 209.

9 Kreisel, H., Eremitage bei Bayreuth, München 1934, p. 22.

10 Holzhausen, W., Lackkunst in Europa, Braunschweig 1958, p. 256; Huth, H., Lacquer of the West, Chicago/London 1971, p. 81; Bachmann, E., Eremitage bei Bayreuth, München 1957, p. 17.

11 Württemberg, P. v., Das Lackkabinett im deutschen Schlossbau: Zur Chinarezeption im 17. und 18. Jahrhundert, Bern 1998, p. 137, 196; Bachmann, E./Seelig, L., Eremitage zu Bayreuth, München 1997, p. 25f; Seelig, L., Friedrich und Wilhelmine von Bayreuth. Die Kunst am Bayreuther Hof 1732–1763, München/Zürich 1982, p. 37.

12 Huth, H., Lacquer of the West, Chicago/London 1971, p. 81; Holzhausen, W., Lackkunst in Europa, Braunschweig 1958, p. 141, 256; Württemberg, P. v., Das Lackkabinett im deutschen Schlossbau: Zur Chinarezeption im 17. und 18. Jahrhundert, Bern 1998, p. 196.

13 On the etymology and the description of the technique see: Hornby, J., Koromandellacke, in: Europa und die Kaiser von China, 1240–1816, Frankfurt a.M.1985, p. 102; and: Piert-Borgers, B., Untersuchungen zum Fassungsaufbau von Koromandellacken – Vorüberlegungen zu einem Projekt, in: Ostasiatische und europäische Lacktechniken, Arbeitshefte des Bayerischen Landesamtes für Denkmalpflege, vol. 112, München 2000, p. 94.

14 Württemberg, P. v., Das Lackkabinett im deutschen Schlossbau: Zur Chinarezeption im 17. und 18. Jahrhundert, Bern 1998, p. 137.

15 Kreisel, H., Eremitage bei Bayreuth, München 1934, p. 21f; Bachmann, E., Eremitage bei Bayreuth,

detailed research the flanking panels and the "fillings" positioned underneath were included.[16] It was claimed that to achieve a homogeneous appearance in the room the Bayreuth polychromy was meticulously executed – in cooperation with the Margravine – and then the surfaces of the Far Eastern originals were extensively painted over to unify them visually.[17] However, the incorporation of original East Asian panels into the panelling has also been called into doubt because of the unusual depiction, painting and lacquer-technique.[18]

OBSERVATIONS MADE ON THE DECORATION TECHNIQUES

Prior to the conservation work undertaken at the Old Hermitage Palace between 2005 and 2009, the panelling was examined *in situ* by the Conservation Centre of the Palace Department. In terms of the relief decor on the lower double panels of the south wall described as "East Asian" in the relevant literature, together with the flanking green panels as well as two further panels on other walls, all have very similar technological characteristics and are clearly distinguishable from all the other panels. Their background surfaces are at the same level as the inner contour of the embossed decoration, and accordingly, individual motifs were built up by gradual applications to the background. As a rule, the other Bayreuth panels show another relationship between background and relief, which seems to be due to a different working technique. In this case the inner contour of the motifs is not on the same level as the background, which means that they were either moulded as a whole onto the surface and then individual shapes were incised or that they were produced separately and later attached to the background.

The cooler colour scheme, especially the green colour of the meadows, and the coarser material of the grained and gilded areas which depict earth, sky and water without any differentiation, further distinguishes the East Asian panels from the Bayreuth imitations. Taking into consideration the dimensions, the number of panels and the joints in the

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München 1957, p. 17; Bachmann, E./Seelig, L., Eremitage zu Bayreuth, München 1997, p. 25; Krückmann, P. O., Paradies des Rokoko. Das Bayreuth der Markgräfin Wilhelmine, München/London/New York 2001, p. 43.

16 Seelig, L., Friedrich und Wilhelmine von Bayreuth. Die Kunst am Bayreuther Hof 1732–1763, München/Zürich 1982, p. 36. 1978–1981 the 'Japanese Cabinet' was restored by Hermann Wiedel, who documented the technological findings.

17 Kreisel, H., Eremitage bei Bayreuth, München 1934, p. 21f; Seelig, L., Friedrich und Wilhelmine von Bayreuth. Die Kunst am Bayreuther Hof 1732–1763, München/Zürich 1982, p. 36f; Württemberg, P. v., Das Lackkabinett im deutschen Schlossbau: Zur Chinarezeption im 17. und 18. Jahrhundert, Bern 1998, p. 138.

18 Turek, P./Achternkamp, S., Bayreuth Neues Schloss und Altes Schloss Eremitage, Abschlussdokumentation, unpublished 2009/2010, 01.049-01.051.

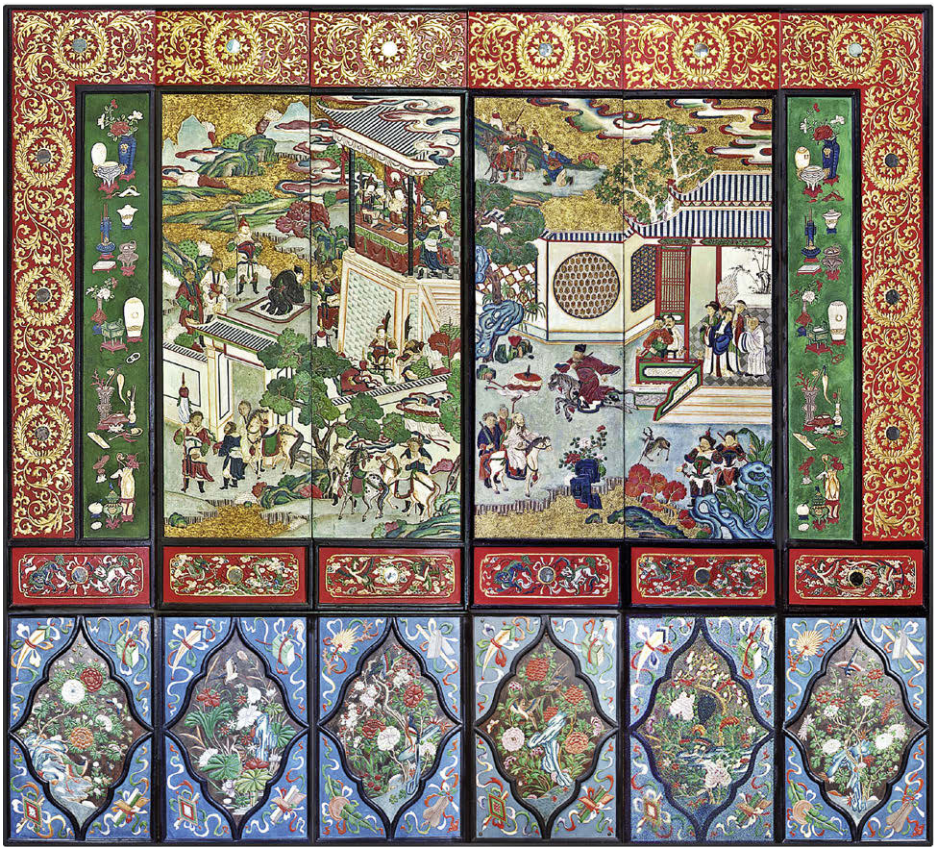

Fig. 2. Digital reconstruction of the Asian Screen, © BSV/photo by H. Huber 2013.

boards as well as the cut-outs for hinges, the East Asian panels can be digitally reconstructed to form a folding screen consisting of six panels.

For its secondary use in the "Japanese Cabinet" the section of the screen underneath the animal frieze was taken apart. The pedestal segment incorporating the screen's feet no longer exists. Originally there were probably additional panels which turned the two distinctly separate scenes into one painting.

EAST ASIAN SCREEN — BAYREUTH IMITATION

In order to create the illusion of an authentic East Asian room the Bayreuth craftsmen used various methods to imitate the original folding screen. For example, moulds were taken from whole parts of the panels.

Fig. 3. Distribution of the Asian panels (red) and the casted Bayreuth panels (yellow) in the "Japanese Cabinet", © BSV/photo by H. Huber 2013.

In this way the decoration of the dado panels, the lion-frieze, the green panels depicting everyday objects and some of the panels with gilded tendrils were reproduced efficiently.

Individual shapes and figures were also moulded individually and were attached in various places or integrated into various scenes.

Especially the architectural features depicted on the Asian main panels served as rough models for the painting of the imitation panels. In this case, however, the Asiatic main scenes supplied only the ideas for the subjects to be depicted on the Bayreuth panels. It is reasonable to suppose that engravings and perhaps even paintings of comparable screens served as varying degrees of inspiration.[19]

Except for the exposed sections over the doors, the composition of the paintings on the second tier is less sophisticated. A conspicuous number of soapstone figures and architectural carvings are arranged at random. They are obviously taken from little Chinese soapstone relief panels, which were very common during that time.[20]

In detail, the Asian-style panels often differ from the original ones. This is due to the fact that the craftsmen misunderstood or disregarded the original design: Wallpapers, textiles and porcelain depicted are decorated with European motifs. The handwritings and the pen-and-ink drawing obviously were made by Europeans.

19 Württemberg, P. v., Das Lackkabinett im deutschen Schlossbau: Zur Chinarezeption im 17. und 18. Jahrhundert, Bern 1998, p. 138. The author refers to the engraving published in: Dapper, O., Gedenkwürdige Verrichtung der Niederländischen Ost-Indiengesellschaft, Amsterdam 1675.

20 Ströber, E., Ostatasiatika, Braunschweig 2002, p. 184f; Seelig, L., Friedrich und Wilhelmine von Bayreuth. Die Kunst am Bayreuther Hof 1732–1763, München/Zürich 1982, p. 37. The author mentioned soapstone figures, bought in Amsterdam by Wilhelmine's mother Queen Sophie Dorothea to complete the furnishing of Monbijou Palace.

Fig. 4. Asian lion frieze (top), Bayreuth casting (bottom), © BSV/photo by H. Huber 2013.

Fig. 5. Horseman on the Asian panel (top); Cast of the Asian horseman on a Bayreuth panel (bottom). The head and hands of the Asian horseman were supplemented with moulded wax during previous restorations, © photo by A. Bunz 2009.

EXAMINATION

In order to develop a conservation and restoration programme for the panelling, some representative panels were thoroughly examined after their removal from the wall. Cross-sections were prepared to provide new information about the layer structures and the specific polychroming techniques of the Asian and European lacquer panels.[21] This was supplemented by staining methods[22], further analytical investigations concerning infill,

21 The paint samples were embedded in Scandiplast® and were polished with Micro-Mesh. The cross-sections were examined with microscopic methods including UV-fluorescence microscopy.

22 Ponceau S, Alkanna and Sudan Black were used as dyes for protein, resin and oil binding media. See: Schramm, H.-P./Hering, B., Historische Malmaterialien und ihre Identifizierung, Stuttgart: 1995, p. 214f.

pigments and staining agents[23] and X-ray-examination[24]. Thereby the findings of the preliminary observation could be proved.

CONSTRUCTION

The dado and the upper zone of the panelling, which are divided into smaller or larger fields, were at first assumed to be part of an elaborate frame-filling construction. Closer observation revealed a simple board construction. The parts of the dado consist of one board. Following the East Asian example, the middle area is constructed of standardized rectangular, 43 cm wide panels. Small black frame-boards are attached on the edges of the fields, thus the main paintings are comprised of two panels with the same motif. The single panels are screwed to the horizontal squared timber, which are partially set in the mortar and bricks of the walls. The European wall panels are made of birch.[25] They consist of only one board or glued boards with butt joints. Two sliding dovetail dados near the end-grain edges were originally filled with small wooden strips to prevent warping. The end grain edges of the overdoor sections and shutters were joined to a board using tongue and groove, which serves the same purpose. The horizontal dado consists of coniferous boards with glued butt joints. The verso of the panels remained unpainted, and shows traces of a scrub plane. The black framework is fixed with small wooden nails.

The whole surface of the East Asian screen panels was originally covered with lacquer. On the reverse sides they are painted with a dark red lacquer without additional ornament. The panels were made of coniferous wood, probably of *Cunninghamia lanceolata*.[26] X-ray examination was carried out in order to discover the structure of the support. Wood with radial grain and few irregularities in structure was carefully chosen. Four boards of various widths are joined by butts with reinforcing bamboo dowels. The board joints are clearly marked, which indicate a less permeable putty. The black framework is attached to the panels with small wrought iron nails.

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23 The pigment analysis with UV-VIS- Spectroscopy and µ-RFA was conducted by Dr. Heinrich Piening, Bavarian Department of State-owned Palaces, Gardens and Lakes, Conservation Department.

24 The digital X-rays were taken by Egon Blumenau, Conservation Department of the Archäologische Staatssammlung München, with 50 kV and 1,5 mAs in 70 sec. Some details were taken with 60 kV and 2 mAs.

25 The wood determination based on the macro- and microscopic features. See: Grosser, D., Die Hölzer Mitteleuropas, Berlin/Heidelberg/New York 1977, p. 98f.

26 The wood determination based on the macro- and microscopic features. See: Wagenführ, R., Holzatlas, Leipzig 2007, p. 722f; Gottwald, H., Handelshölzer, Hamburg 1958, p. 211f.

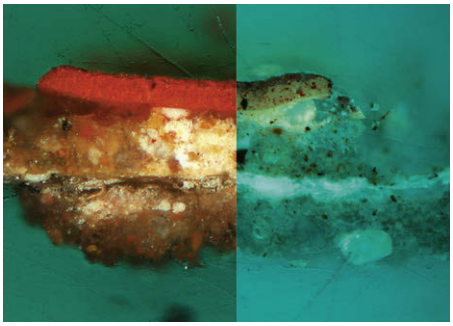

Fig. 6. Asian panel, red lacquer of the front. Paint cross-section showing the layer structure: 1. inhomogeneous reddish-brown ground; 2. Paper embedded in a binding medium with a bluish-white fluorescence; 3. upper coarse brown ground; 4. thin layer of binding medium with a bluish-white fluorescence; 5. homogeneous red layer with a light orange fluorescence; 6. homogeneous red layer with orange fluorescence; 7. Homogeneous red layer with less fluorescence. Viewed in normal light (left) and UV-light (right). Photographed at a magnification of 100x, © BSV/photo by H. Huber 2013.

POLYCHROMY OF THE SCREEN

After the surface was planned and well prepared, the first coarse and inhomogeneous brownish ground layer was applied. It is followed by an uneven layer of paper, used for consolidation.[27] The paper is embedded in a darker brown medium and they fluoresce together in a light bluish-white colour under UV-light. It is covered with another coarse ground layer similar to the first one but containing some other components. With the exception of the red lacquered surfaces all other parts of the screen were given two black layers. The first is pigmented with finely dispersed black pigments and has a slight blue fluorescence. After polishing, a very thin black layer was added, which appears black under UV-light. When examining cross-sections one can usually see these two black layers together, though sometimes one of them is missing. The red lacquered parts of the screen have a very thin brownish layer with a slight UV-fluorescence on the coarse ground layers, which indicates an insolation before the next dark red layer was applied.

Only one cross-section of red lacquer shows the thin black layer on the prime coats. The function of the brownish layer is to separate the coarse ground layers from the dark red layer which was applied next. This intermediate red layer is very homogenous. Analysis proved the finely dispersed red particles to be mineral red oxide. Because the layer could be stained with Sudan black it obviously contains portions of oil. Nevertheless the reddish-orange UV-fluorescence might also hint at the use of *urushi*. After drying the layer was polished.

So far the planed grounds show a comparable structure. Further paint layers differ widely depending on the decoration or colour of the panels. The dark red reverse sides

27 Broussonetia paper was likely used. Private information from Susanne Mayr, Bavarian Department of State-owned Palaces, Gardens and Lakes, Conservation Department.

as well as the black framework received only one final layer of lacquer which appears brownish-black in the cross-section. No pigmentation is visible under UV-fluorescence. The layer appears dark greenish yellow with less fluorescence, which becomes lighter towards the surface, characteristics typical of *urushi*.

The black lacquer ground on the rhombus-shaped reserves is covered by red-pigmented, semi-transparent, slight fluorescent lacquer, which results in the dark reddish-brown colour of the panels. Originally it was decorated with fine metallic particles of a copper-zinc-alloy.

Two additional intensive red lacquer layers, pigmented with red oxide and cinnabar, are applied on the red fronts' priming coats. On the well prepared red or black-brown lacquer surfaces, the raised relief decor was successively built up using a thickly painted white pigment in a protein and oil binding medium. In highly embossed parts the viscous paint was applied several times. It is likely that the surface was roughened to improve cohesion. The embossed pattern and motifs were finally covered with a very smooth and homogenous paint layer, containing sparse blue pigments. The moderate pigmentation together with the obviously polished or compressed surface creates a delicate effect of enamel and porcelain. Subsequently, the painting with different pigmentation in partly opaque, partly translucent application followed. The paint layer also contains a protein and oil binding medium. The rough surface structure of the grained blue and green backgrounds is based on the use of coarse-grained pigments, which were probably scattered onto the still damp, white layer. Analysis revealed that the pigments were malachite and a cobalt blue. In this same technique the gilded parts are prepared by scattering seeds, probably canola, into the sticky black lacquer ground, followed by a red pigmented layer, which was finally covered with gold leaf.[28]

POLYCHROMY OF THE BAYREUTH PANELS

The lacquer of the panels manufactured in Bayreuth has a multi-layered chalk ground with a protein binding medium on the coniferous wood of the dado as well as on the birch panels. With exception of the lion frieze, the red lacquered surfaces are primed with a less expensive, red lead coating. After fitting and adhering the moulded tendrils they were painted over with a bright lacquer of cinnabar. A transparent, unstained spirit lacquer was applied after polishing. The tendrils are gilded in oil technique. The moulded figures of the lion frieze are attached to the cinnabar pigmented lacquer after polishing. Without any raised décor, the transparent lacquer was probably applied after-

28 On the use of seeds see: Heckmann, G./Dei Negri, J., Urushi no Waza, Ellwangen 2002, p. 72.

wards. The uneven width and structure of the surface, which can be observed in several cross-sections, may be due to the lack of polish.

Comparing the homogeneous decoration technique of the East Asian panels carried out on the smooth lacquer ground, it becomes evident that only the moulded relief of the lion frieze of the Bayreuth work is carried out in the same way. The other motifs and their relief of viscous substances are applied directly on the chalk primed, wooden substrate.[29] Furthermore, highly raised parts often consist of small pieces of carved wood, which were grounded, painted and lacquered afterwards like the other sections.

RESULTS

The examination of the polychromy of the panelling enables the differentiation of the Asian leaves of the folding screen from the Bayreuth imitations. To date it was assumed that the East Asian panels were adapted to the Bayreuth panels by extensive overpainting. This has been disproved by technological examination. The paint materials used in the original polychromy of the European panelling were not detected in any part of the examined second polychromy of the screen. No further evidence of reworking at the time of the furnishing of the cabinet was found except for the round mirror cuttings of the lion frieze. These were obviously added later because they cover the Chinese motifs.

A comparison between the panels imported from Asia with those created in Bayreuth with regard to their virtuosity and lightness as well as the use of various painting techniques, it can be said that the latter show less confidence and experience with the raised work on lacquer. However, the integration of the East Asian screen reveals the high esteem in which the East Asian original was held, and the extraordinary motivation and effort of the artisans to create something quite similar to the desirable and luxurious lacquer objects of the East.

ORIGIN AND AUTHORSHIP

„Ich schicke Dir einen indischen Wandschirm zur Ausstattung Deiner Eremitage. Bitte sage mir offen, was hierzulande zu haben ist und Dir Freude machen kann. Ich werde es mir zur Ehre anrechnen, die Bestellung auszuführen und so wenigstens etwas zu Deiner

29 On the decoration technique see: Cröker, J. M., Der wohl anführende Mahler, 1736, reprint Mittenwald 1982, p. 265f.

Zufriedenheit beizutragen …" wrote Friedrich, crown prince of Prussia, to his sister Wilhelmine of Bayreuth on March 3rd, 1739.[30]

So the Margravine received the "Indian screen" at the beginning of the furnishing of the newly built wings of the Hermitage Palace. Unfortunately the term "Indian Screen" does not give a clear indication of its provenance . It probably refers to the export ports of the European trade companies in India. In the 17th and 18th century most of the Chinese export goods were particularly traded in the harbours of the East-Indian Coromandel Coast.[31]

Although the screen shows noticeable differences from the canon of Chinese screens – particularly the undecorated reverse sides, the black dividing framework as well as the European appearance of the stylized foliage – the subjects are depicted in a typical tiered, non-perspective manner. Moreover the conventional ornaments are borrowed from Chinese symbolism, as are the emblems on the dado fillings and the fields with green background.[32] Despite the different lacquer technique, the layer structure of the folding screen's polychromy is quite similar to that observed on other objects from South China.[33]

Relief lacquer decors became increasingly popular in the early 18th century both in Asia and in Europe. In the field of faience and porcelain – the material which the panels of the "Japanese Cabinet" try to imitate – comparable lacquer techniques with raised decor and grained surfaces had been developed especially for the so-called birdcage and Imari vases from Japan, which were later imitated in Europe, especially for the impressive collection of August "the Strong" of Saxony.[34] Particularly the rhombus-shaped reserves of the screen seem to be inspired by these vases. The supplementing of the Asian screen

30 "I am sending you an Indian screen to decorate your Hermitage. Please tell me honestly, what is available here and what would give you pleasure. I would consider it an honour, to undertake the commission and at least contribute something to your satisfaction …" Friedrich der Große/Wilhelmine von Bayreuth, Bd. 1: Jugendbriefe 1728–1740, Volz, G.B. (ed.), Leipzig 1924, p. 403.

31 Hornby, J., Koromandellacke, in: Europa und die Kaiser von China, 1240–1816, Frankfurt a.M.1985, p. 102.

32 Depicted are Buddhist and Taoist symbols (precious objects, attributes of immortality) like bronze cauldrons, vases, clouds, castanets, hanging musical stones, coins, books, rhinoceros horns, fans, gourds, flutes etc. see: Williams, C. A. S., Encyclopedia of Chinese Symbolism and Art Motifs, New York 1960.

33 Breidenstein, I., Konzeptionelle Überlegungen zur Restaurierung eines chinesischen Lackparavents, in: Japanische und europäische Lackarbeiten, Arbeitshefte des Bayerischen Landesamtes für Denkmalpflege, vol. 112, München 2000, p. 566f; Piert-Borgers, B., Untersuchungen zum Fassungsaufbau von Koromandellacken – Vorüberlegungen zu einem Projekt, in: Ostasiatische und europäische Lacktechniken, Arbeitshefte des Bayerischen Landesamtes für Denkmalpflege, vol. 112, München 2000, p. 92–106. The Chinese screen of the Herzog- Anton-Ulrich-Museum, Braunschweig (Inv.-No. Ch 1600) is decorated in a similar embossing technique.

34 Ströber, E., Chinesische und japanische Porzellane mit Lackdekoren in der Dresdener Porzellansammlung, in: Kopplin, M. (ed.), Schwartz Porcelain, p. 26–39. München 2003, p. 32f.

in the "Japanese Cabinet" in Bayreuth was also supported by the proximity to the faience factory of Bayreuth, which was situated close to the Hermitage Palace. The involvement of specialized porcelain painters brought high quality to the lacquer paintings regarding the moulded motives as well as the genre paintings.[35]

This period is characterised by the mutual inspiration of the materials porcelain and lacquer and the increasing demand for luxury objects decorated with extraordinary techniques. Andafter Johann Friedrich Böttger lifted the secret of porcelain manufacturing 1709 in Dresden, the exotic East Asian lacquer was even morevalued. It is quite possible that the Asian lacquer screen of the "Japanese Cabinet" in Bayreuth was not a standard trade good but a special order from a Chinese workshop. So it is likely that the remarkable decorative style corresponds to the special demands of crown prince Friedrich intending to obtain a unique present for the specific taste of his favourite sister Wilhelmine.

Traces of the authorship of special panels or the Margravine personal artistic participation were not detected during examination. Except for the planning, her contribution to the achievement of the elaborate panels is highly questionable.[36] In her memoirs the Margravine proudly mentioned a varnish in her husband's antechamber which she had allegedly invented.[37] As a thank-you-gift for the Indian screen, she sent her brother a little table with the Hermitage's music room depicted on the tabletop, emphasising that it was of her own design.[38] As a dilettante artist the Margravine often mentioned her creative

35 The Bayreuth 'painter of porcelain' and 'painter of cabinets' Johann Christoph Jucht was frequently mentioned (see: Seelig, L., Friedrich und Wilhelmine von Bayreuth. Die Kunst am Bayreuther Hof 1732–1763, München/Zürich 1982, p. 37; Württemberg, P. v., Das Lackkabinett im deutschen Schlossbau: Zur Chinarezeption im 17. und 18. Jahrhundert, Bern 1998, p. 194). The influence of (his teacher) Adam Friedrich Löwenfinck should be reviewed as well. When August "the Strong" ordered imitations of the Japanese "Birdcage Vases" in 1727 Löwenfinck had just started his apprenticeship as a painter of porcelain in the Meissen factory. Maybe he was involved in the special techniques of relief and graining. 1736 he escaped to Bayreuth and had been employed at the faience factory for one year. See: Hofmann, F. H., Geschichte der Bayreuther Fayencefabrik St. Georgen am See, Augsburg 1928, p. 50f.

36 Friedrich der Große/Wilhelmine von Bayreuth, Bd. 1: Jugendbriefe 1728–1740, Volz, G.B. (ed.), Leipzig 1924, p. 350. "…Ich zweifle nicht, dass die Eremitage sehr hübsch wird, zumal wenn Du die Architektur und die Ausschmückung anordnest… *I have not doubt that the Hermitage will be very pretty, especially if you are in charge of the architecture and decoration*." (February 1737). To the Margravines lacquerwork see: Stengel, W., Alte Wohnkultur in der Mark im Spiegel der Quellen des 16. – 19. Jahrhunderts, Berlin 1958, p. 80f.

37 Wilhelmine Friederike Sophie von Brandenburg-Bayreuth, Markgräfin, Mémoires de Frédérique Sophie Wilhlmine, Margrave de Bareith, Soeur de Frédéric le Grand depuis l'année 1706 jusqu'à 1742; écrits de sa main, Bd. 2. Brunswick 1845, p. 248.

38 "Ich erlaube mir, Dir ein kleines Tischchen für Deinen Musiksaal zu schicken. Der Entwurf stammt von mir, und es sieht recht hübsch aus. Ich habe den kleinen hiesigen Parnaß darauf anbringen lassen, obwohl er dieses Namens noch nicht würdig ist…I permit myself to send you a little table for your music

activities, and it is unlikely that she would neglect mentioning her artistic participation in the production of the extraordinary panelling of the "Japanese Cabinet" either in her memoirs or the correspondence with her brother.

CHANGES IN THE FURNISHING AND EARLY MEASURES ON THE PANELLING

During the Margravine's lifetime and also immediately after her death only insignificant alterations were made to the furnishings of the "Japanese Cabinet".[39] Nonetheless, in the second half of the 19th century and in 1928–1935 when the Old Hermitage Palace was redeveloped presumably renovations of the cabinet were undertaken.[40] Conservation measures on the panels in regard to the structure of the relief decor, overpainting and retouching on the lacquer paintings are evident.

The X-ray examination of the Asian panel reveals extended fillings in combination with reinforcing wires. During this renovation numerous lost heads and limbs of Chinese soapstone figures were replaced with moulded wax. This work could be traced back to the 19th or early 20th century.[41]

Because of a severe insect infestation, a pesticide containing PCP and Lindane was twice applied to the verso of the panels during the last comprehensive conservation carried out between 1978 and 1981.

THE CONSERVATION TREATMENT 2005–2009

The poor condition of the Hermitage Palace and its furnishings led to a general conservation campaign from 2005 to 2009. To improve the interior climate in the building, which was the main reason for the extensive damage, a ventilation system was installed

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room. The design is mine, and it looks quite pretty. I had the little Parnassus here painted on it, although it isn't yet worthy of that name." Friedrich der Große/Wilhelmine von Bayreuth, Bd. 1: Jugendbriefe 1728–1740, Volz, G.B. (ed.), Leipzig 1924, p. 424 (October 23, 1739).

39 Staatsarchiv Bamberg, Inv.:C 9 IV, Nr. 2150 (1751); Inv. C9 IV Nr. 2151(1785); Inv. C9 IV Nr. 2153 (1789); Inv. C9 IV Nr. 2154 (1798); BSV, Inv.: Nr. 396 (1813). Quoted by Turek, P./Achternkamp, S., Bayreuth Neues Schloss und Altes Schloss Eremitage, Abschlussdokumentation, unpublished 2009/2010.

40 Krückmann, P./Erichsen, J./Grübl, K., Die Eremitage in Bayreuth, München 2011, p. 36f; Kreisel, H., Eremitage bei Bayreuth, München 1934, p. 22.

41 The wax fillings are visible on photos of the 'Japanese Cabinet' taken 1943–1945 ('Reichskriegsverfilmung'). See: Turek, P./Achternkamp, S., Bayreuth Neues Schloss und Altes Schloss Eremitage, Abschlussdokumentation, unpublished 2009/2010.

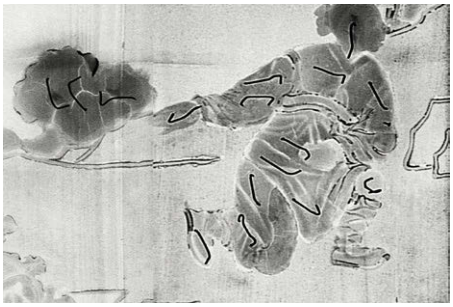

Fig. 7. The X-ray of the Asian panel shows extended fillings with reinforcing wires and butt joints with a bamboo dowel, © photo by E. Blumenau 2006.

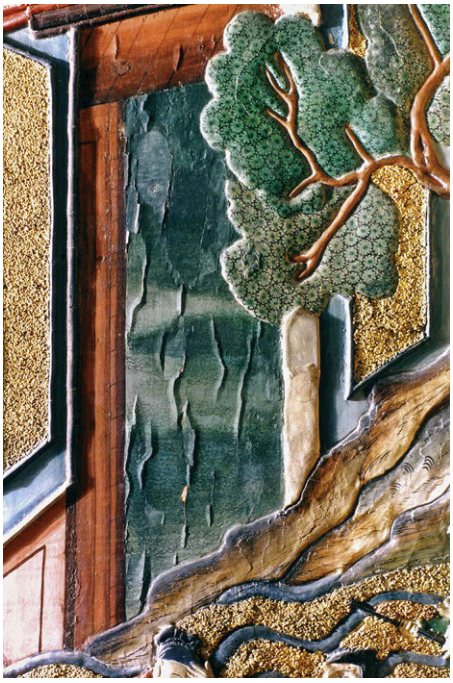

Fig. 8. Bayreuth panel with wide-spread blistering, fillings and retouches, © BSV/ photo by H. Huber 2013.

in the roof. It is designed to bring conditioned air into the building with a slight pressure overload, preventing the inflow of unconditioned air. The conditioned air stream through the chimney reduces the relative humidity to levels of 40% – 60%. During winter closure frost-free conditions can be guaranteed by radiators made of marble slabs inside the rooms. Unfortunately summer and winter dry periods still need to be compensated by humidifiers. To optimize the climatic conditions outer shutters were reconstructed; they remain closed during winter time.

Since their original installation, the panels of the "Japanese Cabinet" have suffered various forms of damage in consequence of previous refurbishing and unfavourable climatic conditions. Due to the fact that the wood reacts to humidity with swelling and shrinking, there was a lot of damage to the construction. Wood joints and butts had opened and cracks had formed in the wooden substrate. Close to the butts and cracks, loss of the polychrome paint layers was a common sight. The relief and the entire paint layer suffered extensive lifting from the wooden substrate, while in some parts widespread blistering and flaking caused considerable loss of the upper paint layers.

Many soapstone applications were lost. Because of the high level of contamination with pesticides – in some places the harmful substances had migrated through the wood

and formed small crystals on the surface – it was decided to remove the panelling for conservation purposes. It was thus possible to decontaminate the unpainted reverse sides. The reduction of the toxic agents was conducted using a pulsed cleaning laser; subsequently the vaporized components of the pesticides were vacuumed by special air filtering systems.

During the wide-ranging conservation and restoration measures[42] the paint layers were consolidated by usual methods, mainly with the application of varying concentrations of icing glass. Gaping cracks and separated butts of the panels were filled with balsawood in order to prevent further loss of jutting paint layers. Subsequently, lacunae were filled in. Furthermore, gaps in the raised decoration were closed with suitable fillers to achieve sustained consolidation. Areas of transparent lacquers with extreme tension and sometimes distinctive craquelures were thinned to prevent further loss. After a regeneration of the white spirit lacquer, fillings and losses in the polychromy, discoloured parts and overpainting were retouched, blending them to their surroundings.

After conservation and moderate restoration measurements the extraordinary cabinet of Margravine Wilhelmine of Bayreuth reveals a unique but authentically aged impression, which the original owner intended and which enchants us today.

SUMMARY

The Bavarian Department of State-owned Palaces, Gardens and Lakes is responsible for magnificent East Asian cabinets in the courtly residences at Munich and Bayreuth. The most remarkable of them, the "Japanese Cabinet" of Margravine Wilhelmine of Bayreuth, dated 1739, is a small but splendidly decorated room. It is furnished with a polychrome panelling decorated in bas-relief. Only two double panels were thought to be original Far Eastern works in previous publications. Prior to the conservation work carried out at the Old Palace between 2005 and 2009, the cabinet was investigated by the Conservation Centre of the Palace Department. Technical examinations of the panels, their composition and the layers of paint enabled the conservators to discover further original, probably Chinese panels, and to distinguish them clearly from the German Chinese-style panels. The Asian panels were originally part of a screen, which could be reconstructed using digital photographs. Pigment analysis and X-ray examination support this reconstruction. The paper explores the significant differences between the Far Eastern screen panels and the German imitations. The recent conservation included the

42 The conservation and restoration concept was developed by Tatjana Kessler, Bavarian Department of State-owned Palaces, Gardens and Lakes, Conservation Department.

removal of pesticides, the setting up of a climate control system and further preventive conservation measures.

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ANN VERDONCK, MARJOLEIN DECEUNINCK, HUGO CLAES,
ELISABETH VAN BESIEN

The Japanese Tower at the Royal Domain in Laeken: Rehabilitation of a Unique Japanese Lacquer Ensemble

ABSTRACT

The Japanese Tower is an eminent landmark on the north edge of the Royal Domain in Laeken just outside the city centre of Brussels. Built by order of King Leopold II of Belgium, the Tower is today the property of the Belgian State, managed by the Buildings Agency of the Belgian Government. The ground floor is occupied by the Museum of the Far East, part of the Royal Museums of Art and History. For many decades the five floors of the Tower have been left untouched, thus preserving the original decorations. The Japanese Tower dates from 1904 and was designed by the famous French architect Alexandre Marcel (1860–1928). The Tower itself is timber-framed, built by European craftsmen. The remarkable interior decoration consists both of elements which were shipped from Japan, as well as European-made parts. A rich variety of decorative techniques and materials was found during the architectural paint research: Japanese lacquer-work (urushi and ikkei saishiki), Japanese polychromy (nikawa saishiki), Japanese aventurine (nashiji) and European aventurine, Japanese and European finishes on canvas, wood and stucco, metal decorations and Japanese wallpaper. During the examination and analysis it became clear that European craftsmen have retouched lots of original Japanese decoration during the initial installation. This retouching, confirmed by the accounts found in the Brussels Royal Archives, increases the complexity of differentiating European and Japanese work. The rediscovery of and research regarding the sumptuous interior decoration in the Japanese Tower, including many parts brought from Japan, provides unique insights into Meiji-era Japonisme in Europe and cultural relations between Europe and Japan at the turn of the 20th century. The conservation of this splendid ensemble will be a major challenge for the future conservation team, as it was for the research team.

INTRODUCTION

The Royal Domain with the King's residence is situated in the municipality of Laeken (Brussels). The Japanese Tower, commissioned by King Leopold II (1835–1909), is

Fig. 1. The Japanese Tower by Alexandre Marcel shortly after completion, undated, © Archives of the Royal Palace, Brussels, Documentary Collection n°. 586, iconography E. Goedleven.

LA TOUR JAPONAISE DE LAEKEN
LA TOVR JAPONAISE
DV DOMAINE ROYAL DE LAEKEN
COVPE SVR LA TOVR
COUPE SUR LA TOUR ET LE GRAND ESCALIER D'ACCÈS

Fig. 2. Cross-section of the Japanese Tower by Alexandre Marcel, undated, © Archives of the Royal Palace, Brussels, Documentary Collection n°. 586, iconography E. Goedleven.

situated at the Van Praetlaan, next to the Royal Garden with its famous greenhouses. 19th century Laeken was characterized by an attractive and varied landscape with unique scenic views. This residential district was therefore a fashionable location for a Sunday promenade. During his reign, King Leopold II decided to live permanently in Laeken instead of in his palace in the center of Brussels. He developed the plan to build a new ideal city around the private Royal Domain with open green spaces, footpaths, roads, etc. for his citizens. The Van Praetlaan was conceived as a new prominent avenue to separate the private Royal Domain from the public area. The Japanese Tower and the Chinese Pavilion were designed as landmarks along the avenue creating a cultural and international environment. Initially, whereas the Chinese Pavilion was a restaurant, the function of the Japanese Tower was never exactly defined.

The Japanese Tower consists of three parts: an entrance pavilion at the Van Praetlaan, a large covered staircase towards the ground floor and the tower itself. Except for the reception of foreign heads of state during their official visits, the tower was practically never used. The King wanted the Tower to have luxury finishing. He claimed the first floor by adding Oriental furniture and installing a toilet hidden behind a large turning panel and fitting the space with two radiators. The utility rooms were organized in the basement. The construction took three years, from 1901 till 1904 and, on May 6, 1905 the official inauguration was held during a memorable garden party. In 1909 the King decided to transfer the management of the Japanese Tower to the Ministry of Foreign Affairs under one condition: the tower had to be transformed into a commercial museum for high quality Belgian-Japanese collections. From 1910 onwards, after the death of King Leopold II, the Ministry of Public Works carried out some urgent repairs.

The Japanese Tower was closed until 1922 after vandalism during the First World War. Consequently, the Japanese Tower and Chinese Pavilion were transferred to the Royal Museums of Art and History under the authority of the Ministry of Art and Sciences. During the 1935 World Exhibition some collections of Oriental art were displayed on the Tower's first floor, while visitors could also enjoy the view from the fifth floor. Access to the Tower became limited during World War II and it closed in 1947 due to lack of funds. In 1988 the successor agency of the Ministry of Public Works, the Belgian Buildings Agency, responsible for the maintenance of all Belgian public buildings, decided to paint the tower's facade. More elaborate restoration work was accomplished in preparation for the "Europalia-festival Japan" in 1989. Moreover, a Japanese-inspired garden was installed and a tunnel under the Van Praetlaan connected the site of the Chinese Pavilion with the Tower entrance.

The exterior of the Japanese Tower was under repair again in 2007. Before starting, 32 large wooden carved sculptural panels from the base of the tower were removed, as well

Fig. 3. Postcard of the King's chamber on the first floor shortly after completion, undated, © Archives of the Royal Palace, Brussels, Documentary Collection n°. 586, iconography E. Goedleven.

as 44 decorative metal elements. The Royal Institute for Cultural Heritage assumed the research on one particular panel to establish correct cleaning and conservation treatment of the polychromy. Currently all the other panels are still awaiting treatment before remounting. In 2010 Fenikx, a multidisciplinary team of researchers[1] undertook detailed preliminary research in order to advise the Belgian Buildings Agency on the conservation and restoration of the interior decoration of the Tower. Together with the Museum of the Far East, reflections on the future usage of the tower were started as well as considerations on the possibility of opening the tower for small groups of visitors.

RESEARCH METHODOLOGY

To conduct this complex research the team was composed of an architect, an art historian and conservators specialised in wallpaper, metal, lacquer-work, wood, paintings and polychromy. In addition to this team, the laboratory of the Royal Institute for Cultural Heritage conducted sampling. During the project, the team maintained a constant dialogue about the findings with continuous self-reflection and evaluation. To guarantee a well-considered way of dealing with the delicate problems of this highly unusual building, international specialists were invited to discuss methodological, technical and deontological issues.[2] Additionally, the team organised two workshops with Japanese specialists to verify and discuss their findings.

1 Fenikx bvba acting upon instructions from the Regie der Gebouwen (Belgium Buildings agency) assembled an interdisciplinary team: Marianne Decroly, Delphine Mesmaeker and Jana Sanyova (experts on historic finishes), Etienne Costa (expert on paintings), Françoise Urban (expert on metals) and Rosemie Cheroutre (expert on historic wall papers). The preliminary investigation of the interior finishes was conducted from September 2010 up till February 2011. In a second phase from September 2012 till July 2013, building specifications for urgent consolidation were recorded.

2 Catherine Coueignoux, specialist on Asian Lacquer – Victoria and Albert Museum London, Prof. Dr. Anne van Grevenstein – University Amsterdam, Department of Restoration and Conservation and Prof. Dr. William Coaldrake – Department of Cultural Resource Studies, University of Tokyo.

In preparation for the on-site investigation, the Royal Archives were combed for material, which yielded valuable information based on original invoices, shipping lists, correspondence, brochures written by the architect etc. The on-site investigation started with the mapping and survey of the Tower, using traditional and digital equipment. Subsequently the survey continued with a visual examination of the decorative scheme using oblique and UV-light. Small stratigraphic samples were taken to identify the sequence of layers (preparation, original finish, over-painting, alteration etc.). When stratigraphic information failed or was confusing, small samples were taken for further analysis. Examination under magnification clarified the composition of the finishes. Binding medium, pigments and additives were identified using microscopic, micro-chemical and physico-chemical methods (micro X-ray fluorescence analysis and infrared-spectroscopy). In order to determine the sensitivity of the different materials towards water and solvents and to establish correct cleaning methods, cleaning test-strips were indispensible. The research team also had to find a solution for the severe flaking of the paint in some areas and conducted series of consolidation tests. For inspection of the construction behind the decoration an endoscope with light source and camera was employed. Subsequently an inventory of all the different finishes was added to the drawings. For each different finish and material a clarifying chart was made containing all relevant information: numeration, identification, dimensions, localisation, description of the technique used, determination of the paint layers (support, primers, finishes, interventions, etc.), damage report, samples lifted, results of cleaning and consolidation test-strips, notation of any urgent conservation requirements and photographic documentation.

CONCEPT AND CONSTRUCTION

King Leopold II was inspired by *The Tour Du Monde* at the World Exhibition of 1900 in Paris, designed by the celebrated French architect Alexandre Marcel. The King engaged Marcel to design the Japanese Tower in Laeken, not as a reflection of his personal aesthetic taste but of his visionary attitude regarding the East. He wanted both to explore new markets and to promote the Belgium's economic interests in China and Japan. The Japanese Tower and the Chinese Pavilion are the materialisation of his intention to start commercial relations with these countries.

The construction of the timberwork started in 1901 and the entrance building of the *Tour Du Monde* was reused to access the Tower. Marcel was delighted with the Japanese construction principles as he wrote: "The characteristics and also the enormous difficulty of this immense work lays in the execution of the entire structure in wood without using any iron. By rejecting the European way of building and adapting Japanese construction

Fig. 4. The chamber on the fourth floor with the Frieze of the Musicians, © photo library of the Royal Institute for Cultural Heritage, n°. X037979, 2008.

methods, a perfect balance between the oeuvre and its resistance to the northern winds was obtained."[3] However it is rather doubtful that he fully understood the ingenious features of Japanese pagodas. What early craftsmen had discovered by trial and error was that, given a hefty sideways shove, a pagoda's loose stack of individual floors could be made to slither sideways to and fro independent of one another. Besides, the trunk-like centre pillar *(shinbashira)* constrains each storey from swinging too far in any direction by colliding internally against this central fixture.[4] Marcel transformed the wooden structure to European standards by introducing five levels and by adding wooden wind braces on each level. The work was completed in 1904 and the initial budget estimate of 300.000 gold Francs was tripled to 918.460,51 gold Francs.

3 Marcel, A., La Tour Japonaise du Domaine Royal de Laeken, Brussels 1911, p. 6. "La caractéristique, et aussi l'énorme difficulté de ce colossal travail, est d'avoir été exécuté entièrement en bois, sans aucune adjonction de fer, rejetant en cela les usages européens pour adopter les plus rigoureuses méthodes de la technique japonaise. De cette manière de faire, il résulte, d'ailleurs, une parfaite élasticité de l'œuvre qui a victorieusement résisté aux vents du Nord."

4 S. n. An Engineering Mystery: Why Pagodas Don't Fall Down, in: The Economist, Dec. 20th 1977, p. 121–122.

The ten-storey building consists of five main chambers and an impressive staircase added in an external stairwell. All advanced features for comfort of that time such as electric lighting, sanitary installations, an elevator and central heating are integrated inside. The sumptuous interior decoration of the Japanese Tower is still very impressive even in its present neglected and deteriorated state. King Leopold II's unlimited resources combined with the exuberant architectural style of Alexandre Marcel provided the underlying foundations for the realisation of this unique monument.

JAPAN IN THE 19TH CENTURY

Between 1603 and 1868, Japan was ruled by the Tokugawa dynasty, the so-called 'shoguns'. The administrative capital was located in Edo (now Tokyo). During this period, the emperor had no actual power. The Edo period was one of relative peace and stability but at the same time, no influence from abroad was tolerated. From the middle of the 19th century, gradually more foreigners were allowed into the trading port towns of Japan and information about the West seeped in. On different occasions both England and Russia tried to break through the Japanese isolation. This internal and external pressure on the isolationism created a swift and profound change of Japanese politics and society. In 1868 the political power shifted from the shogunate back to the emperor and as a consequence a radical westernisation was initiated. To maintain their lifestyle and as a new source of income, the shoguns started selling their art and artefacts. They even dismantled mausoleums to trade the architectural components. At that time, a huge interest in eastern artefacts stimulated a lucrative trade between Asia and Europe.[5] This is the historical context in which the Japanese Tower was built.

JAPANESE FINISHING TECHNIQUES IN THE TOWER

In the Tower interior we can distinguish three categories of polychrome and painted decorations: Japanese, European and Japanese elements with European interventions. To distinguish between Japanese and European elements, a combination of archive research, site observation and analysis of samples was employed. The European parts and interventions could quite easily be identified by means of detailed invoices from the Royal Archive. On the other hand, only general shipping lists were available for the Japanese

5 Kozyreff, C., Droombeelden uit het Verre Oosten. De Japanse Toren en het Chinese paviljoen te Laken, Brussels 2001, p. 31–34.

components. Therefore, we had to rely more on observations and analysis. Still, we were fortunate to have Japanese specialists to help us unravel the puzzle. Shigeru Kubodera[6] and William H. Coldraeke[7], both specialists for historic Japanese architecture, helped us recognize re-used elements and identified some striking Japanese finishing techniques. These techniques were confirmed by Yoshihiko Yamashita[8], who also shared useful information concerning Japanese lacquer.

First of all we came across the traditional black, red or green *(sheishitsu),* smooth monochrome lacquer-work, identified on the framework of the sliding doors, the mouldings, the columns of the first and third floor and as background on most of the sculpted panels. As confirmed by analyses, the black, red or green lacquer is *urushi*. Simultaneous comparison with Japanese lacquer standards is required in order to identify the lacquer used in the Tower. *Urushi* is obtained as juice from the Asian urushi tree, *Rhus Vernicifflua,* and is composed principally of urushiol, polysaccharides, glycoproteins, enzymes and water.[9] The liquid *urushi* is applied in several thin layers to guarantee a uniform hardening (polymerization) and resistance to water and solvents. The quality of the *urushi* juice depends on the harvest, the filtering and refining process, and especially the application method (numerous thin layers, frequently polished). Pigments to colour the lacquer are limited: "The addition of pigments is usually carried out by the artist. The number of colours available in the past has been limited because many pigments are incompatible with urushi. They either discolour or inhibit the drying process. Historically cinnabar, orpiment and iron oxide black were the most common pigments used. (…) In the late nineteenth and twentieth century the pallet was expanded considerably due to the availability of new synthetic pigments."[10] Good preparation is essential before the *urushi* is applied. This undercoat can consist of *urushi* or of a lacquer–clay mixture. Sometimes this preparation layer can be composed of animal glue (*nikawa*) and clay (calcium carbonate, kaolin, lime or chalk). The undercoat is polished before painting the finishing lacquer. Each thin layer of this finishing has to be polished and glossed to obtain high-quality lacquer-work. For the intermediary polishing, natural stone is applied and

6 Shigeru Kubodera, Senior Conservation Architect, Director, Historical Research Institute for Architectural Decoration Technology, Iwate, Japan.

7 William Coaldrake, professor at the Department of Cultural Resource Studies, University of Tokyo.

8 Yoshihiko Yamashita, researcher and conservator in Japan Center for International Cooperation in Conservation of National Research Institute for Cultural Properties, Tokyo, Japan. He studied urushi (lacquer) techniques and conservation from Yoshikuni Taguchi who was a living-national treasuer of makie techniques and conservation of urushi objects.

9 Kawanobe, P. W., Urushi as seen from polymer chemistry, international course on the conservation of urushi, National Research Institute for Cultural Properties, Tokyo 2001, p. 19–22.

10 Webb, M., Lacquer technology and conservation. A comprehensive guide to the technology and conservation of both Asian and European Lacquer, Oxford 2000, p. 8.

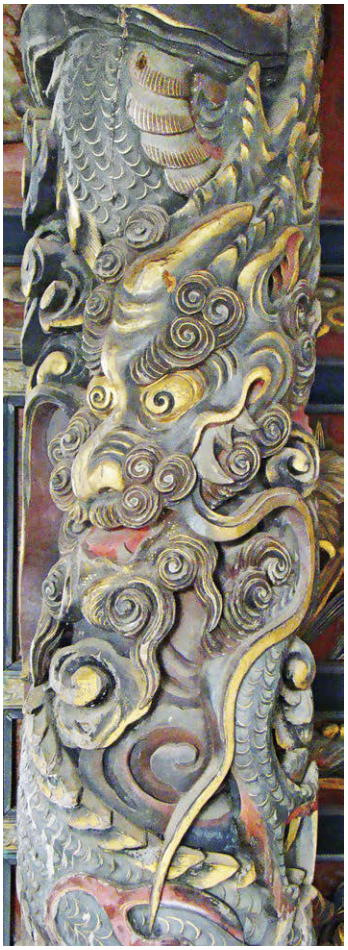

Fig. 6. The chamber on the fourth floor with the frieze of the musicians: detail of the frieze, *nikawa saishiki* technique, © photo library of the Royal Institute for Cultural Heritage, n°. X038010, 2008.

Fig. 5. Sculpted column of the second floor in *Ikkei saishiki* technique, © photo by Fenikx bvba.

the final glossing is accomplished with charcoal. The final brightness is obtained using calcined deerhorn *(tsunoko)* and non-drying oil.[11]

One of the striking finishing techniques is the so-called *ikkei saishiki,* a traditional Japanese polychromy on metal leaf, which is applied on a lacquer-work basis. This finish is characterised by tactile brushwork demanding extraordinary virtuosity. Although no metal leaf was applied on the decoration in the tower, we choose to use this terminology because of the resemblance. Observations made by Yoshihiko Yamashita and Shigeru Kubodera confirm the extensive use of *ikkei saishiki* in the Tower as it is applied on the

11 Verdonck, A./Deceuninck, M., The interior decoration of the Japanese Tower at the Royal Castle Domain in Laeken, Journal of Architectural Conservation, vol. 18/2, Shaftesbury 2012., p. 86.

Fig. 7. Detail of the *nashiji* technique on the balcony doors, © photo library of the Royal Institute for Cultural Heritage, n°. X038016, 2008.

small panels in the gliding and balcony doors, on the columns of the second and fourth floor, on some of the large sculpted panels and on the columns with cranes on the fourth floor.

Next to this lacquer-based finish, a matte polychrome finish was identified as *nikawa saishiki*. *Nikawa* refers to the animal glue, while *saishiki* refers to the coloured painting. This technique is found on the frieze with musicians and the *kaerumata* or frog-leg shaped decorative struts and relief sculptures with beautiful and meticulous details. These panels were all made in Japan and originally had vibrant and bright colours.

Another Japanese technique used in the Tower interior is *nashiji*, which consists of small tin spangles, strewed onto the fresh *urushi* surface and afterwards burnished with charcoal, so that the tin flakes became visible through the lacquer. This manufacturing process could be confirmed in the cross-sections. In traditional Japanese *nashiji* gold or silver flakes – called *nashiji-ko* – were used. The name *nashiji* refers to the speckled appearance of the Japanese pear's skin *(nashi).* In Europe this technique is named after the aventurine stone, a variety of microcrystalline quartz containing small inclusions of shiny minerals or mica which give the stone a silvery, sparkling aspect in colour ranges from green, brown to blue. This technique was applied in the Tower in a brown shade on the framework of the balcony and gliding doors.

Next to these remarkable Japanese finishes, observations made by Shigeru Kubodera and William Coaldrake prove that the Tower interior includes elements from the late

Edo and Meiji periods, that is, from possibly the 18th century through until the early 20th century. This era witnessed the flowering of the decorative arts in Japan. "The Tower reflects and represents this [culmination] in the sophistication of the crafts and technologies employed to decorate the interior. The Tower contains what amounts to a magnificent collection of kaerumata 蛙股, 'frog-leg' shaped decorative struts and relief sculpture that were used to decorate Japanese Shinto shrines and shogunal mausolea. These kaerumata alone make the Tower an important cultural asset. Each kaerumata is decorated with birds-and-flower sculpture in high relief or 'in-the-round' painted with traditional Japanese polychrome (nikawa saishiki 膠彩色). Two different profiles are used for the 'frog's legs'. These two profiles are both distinctive to the middle part of the Edo period (1600–1868), that is, the eighteenth century. Their style and sophistication of decorative technique suggest strongly that they came from a building dating to the Edo period. Together with the two pairs of deeply carved pillars flanking the entrances on the second and third floors, they represent the highest levels of decorative arts used in Japanese architecture. (…) Only a few places in Japan have a similar combination of decoration and architecture. These include the buildings of the Nikkō Tōshōgū and the Kangiin Shōtendō Honden, both of which contain buildings that are registered as National Treasures under the Heritage Act in Japan."[12]

The copper appliques (around 2300 pieces) on the walls, sliding doors and balcony doors are partly made in Japan and have a moulded decoration. They are gilded and some of them are a combination of gilding and black varnish. The walls of the staircase were been hung with *kinkaragawa-gami,* a type of Japanese wallpaper. The embossed paper with red peonies originally had a gold background but this has completely oxidised into green.

EUROPEAN FINISHING TECHNIQUES

In the course of shipping and several months of storage in poor conditions, some of the original Japanese objects were damaged. According to an original invoice of 1905 by Cavaillé-Coll, the Japanese frieze with musicians on the fourth floor was restored during construction. This makes the retouching a significant part of the original phase of work. Zooming in on the details of the frieze during research it became clear that the restoration work mentioned in the invoice description was sometimes a complete repainting. In preparation for the official opening of the "*L'Exposition Permanente Belgo-Japonaise*",

12 Coaldrake, W./Kubodera, S., Report on Survey and Consultations Conducted at the Japanese Tower, Royal Castle Domain Laeken, Brussels, 24–28 September 2012, Brussels 2012, p. 5–7.

a second restoration campaign altered the Tower's decoration. These retouching remedies such as adding varnishes and overpainting are not considered of major value by the research team and therefore should be partly or fully removed during future treatment.

The most striking European finish is that with aventurine. Unlike the *nashiji*, where the tin spangles were sprinkled into the wet *urushi* surface, this European variant is a transparent varnish mixed with coarse brass particles. The difference between both the Japanese and European application method and composition is illustrated in the cross-sections. This finish, used for the entire staircase, originally had a gilded appearance but over time has completely oxidised into a green surface, thereby completely altering the perception and effect of the staircase.

Several decorative paintings on canvas – *marouflage en toile* – are of European manufacture. The canvas on the fourth floor ceiling has the pencil inscriptions "Willemsen 1904" on the selvage, the signature of one of Cavaillé-Coll's painters. The figurative decorations were brushed with linseed oil and gold leaf onto charcoal cartoons; scientific examinations confirm that the painted canvas was affixed to the ceiling with lead white as an adhesive, a technique known as *marouflage*. The painted image on the canvas depicts figures styled from the temple of Nikko. A *velum*, with a painting directly on the canvas without a preparatory layer, originally completed the ceiling of the second floor. The velum was removed quite some time ago and is kept in storage in the museum.

Metal decorations, including hinges, locks, fittings and lighting, also have a significant impact on the perception of the interior. Most metal decoration was originally gilded and/or finished with tinted glazes. Other European techniques are *lincrusta* on the beams of the second and fifth floor, embossed and gilded canvas on the columns of the second floor and polychrome gypsum brackets on every floor.

PRESERVATION AND DETERIORATION VERSUS FUTURE RESTORATION CHALLENGES

The damage to the decoration is a complex matter and has different causes. First of all, there is the challenge of climate control throughout the whole building because of the inadequate insulation. Temperature and humidity monitoring during preliminary research revealed variations in the summer temperatures from 10,5 to 32,1° Celsius and humidity from 42,4% to 89,6%. This presents a huge problem for future conservation. Direct sunlight has also caused UV-damage to the lacquer decoration particularly on the upper floors.

An urgent problem is the severe flaking of the polychromy on the ceiling of the first and third floors and on the frieze with musicians. In the frieze, up to 30% of the surface

has already been lost. The layers on many of the elements with matt polychromy are pulverized.

The overall pollution disturbs the legibility of the decoration and gives the interior an expressionless grey look. Additionally there is the problem of the oxidation of the *nashiji*, the European aventurine and the metal decorations. Except on the metal ornaments, this damage is irreversible. Many ornaments show an efflorescence of which the cause is not clear. The European interventions on the Japanese decorative elements such as retouching, varnishing, and overpainting have also altered badly over time. The ceiling of the fifth floor is affected by water infiltration that caused loss of substance (painted canvas) and structural instability. Last but not least are the problems of accessibility to the tower, electric cabling, floor coverings, heating, etc.

Because the deterioration differs from material to material and from technique to technique, one of the major conservation challenges is to focus on a balanced result. Some damage is irreversible and has to be taken into account when conservation strategies are devised.

The first step towards rehabilitation is a conservation campaign which will start at the end of 2013 with the most urgent preservation work. During this campaign the finishes on the ceiling of the first and third floor and the frieze of the fourth floor will be fixed, UV blinds will be mounted and affected zones will be disinfected. The next step will be an exhaustive cleaning and dusting operation, followed by fixation and consolidation of the lacquer. This should preferably be done floor by floor, so that the experience and skills in methodology, products, techniques, etc. grow as the work continues. Regular evaluation of the results will be indispensable.

CONCLUSION

As a result of preliminary research on the interior, a huge and unique collection of lacquer work, Japanese architectural ornaments from the Edo and Meji period in combination with European artefacts was rediscovered and evaluated. The tower provides an extraordinary insight into the antiques trade between Europe and Asia at the end of the 19th and beginning of the 20th century. We hope that this current knowledge can turn back the modern perception of the tower only as a kitschy whim of King Leopold II. Moreover, the tower should be treated as a World Heritage Site.

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BIRGIT MÜLLAUER, GABRIELA KRIST, MANFRED TRUMMER,
TATJANA BAYEROVA

Mounted Porcelain in the "Chinese Cabinets" at Schönbrunn Palace, Vienna

ABSTRACT

The East Asian interior decoration at Schönbrunn Palace represents one of the world's most significant testimonies of the European aristocracy's affection for Asia during the Baroque and Rococo eras. The "Chinese Cabinets" as well as the "Porcelain Cabinet" at Schönbrunn Palace, having their origins in the period of Empress Maria Theresia (1717–1780), are now – in advance of their conservation – the focus of the three year research project "Asian Interior Decoration in Schönbrunn Palace", granted by the Austrian Science Fund. The collecting focuses in Schönbrunn, as well as the materials highlighted in this project, are the ceramics/ porcelains, the lacquerwares and watercolours. Research concentrates on the materials used, their production technologies and the history of the objects. A study of the conservation history of the collection investigates and identifies the measures which have been taken to restore and preserve the items over centuries. Subsequently, conservation concepts for the porcelains, the lacquerware panels, the white-painted woodwork and the gilded frames are carefully considered together and are primarily aimed at maintaining the cohesion of the ensemble and respecting history. The most recent display and mounting situation presented a high risk for the ceramics in the "Chinese Cabinets". Now, for the first time detailed examination and documentation is possible. Traces of former interventions offer valuable evidence for the object's history and previous presentation schemes. The development of a sustainable and flexible mounting system for the ceramics fixed on the consoles with a particular emphasis on optimising the exhibition modalities is the basis for the conservation and long-term preservation of these objects.

THE "CHINESE CABINETS" AT SCHÖNBRUNN PALACE

Situated at either side of the Small Gallery on the *belétage* of Schönbrunn Palace, the Oval Cabinet in the East and the Round Cabinet in the West comprise the two so-

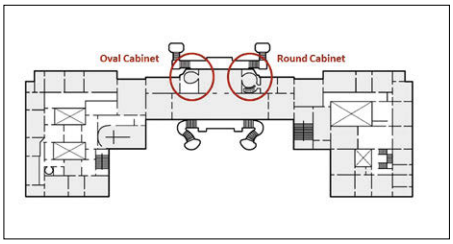

Fig. 1. Ground plan *belétage*, Schönbrunn Palace, © Schloß Schönbrunn Kultur- und Betriebsges.m.b.H.

called "Chinese Cabinets." The original furnishing and decoration can be dated between 1753–1760 – during the course of Pacassi's rebuilding[1]. The collection of lacquerware and porcelain has its origins in the period under the rule of Empress Maria Theresia (1740–1780).[2] The "Chinese Cabinets" are decorated with white and gold woodwork in which lacquer-ware panels of varying shapes and sizes are set, surrounded by gilded ornamental frames.

These ornamented frames incorporate a total of 303 little consoles in both rooms.[3] Most of the consoles are made of two carved parts, glued together and fixed to the panelling by screws; sometimes parts of the consoles are connected directly to the frames. Until dismantling at the end of 2012, these consoles supported 252 pieces[4], 51 consoles were empty[5]. Today the collection is composed of 213 ceramic vessels, including flasks, buckets, vases and canisters (mainly porcelain)[6] and 29 porcelain figurines[7] of varying sizes. The objects measure between 7 and 33 cm in height, between 6 and 21 cm in width and have depths varying between 6 and 15 cm.

In the Round Cabinet the decoration of the ceramics is kept in a blue and white colour scheme throughout. The only exceptions are 6 Chinese figurines of which the celadon-green glaze and painted decoration[8] accentuate their robes and hair.

The Oval Cabinet appears much more colourful: beside 8 blue and white coloured vessels, there are objects decorated in the typical *Kakiemon* or *Imari* colour scheme of

1 Iby, E./Koller, A., Schönbrunn, Wien 2007, p 110.

2 Pantzer, P., Imari-Porzellan am Hofe der Kaiserin Maria Theresia, Düsseldorf 2000, p 22–25.

3 138 in the Oval Cabinet and 165 in the Round Cabinet.

4 122 in the Oval Cabinet and 130 in the Round Cabinet. The collection is composed of 236 porcelain and 6 earthenware objects.

5 16 in the Oval Cabinet and 35 in the Round Cabinet

6 89 in the Oval Cabinet and 124 in the Round Cabinet

7 23 in the Oval Cabinet and 6 in the Round Cabinet

8 Bézard, A., Kaltbemaltes Porzellan, Untersuchung und Erhaltung, unpublished report, University of Applied Arts Vienna/Institute of Conservation, Wien 2013. Analytical work on the samples has been undertaken using microscopy, microchemical and histochemical staining tests and scanning electron microscopy-energy-dispersive X-ray spectroscopy (SEM-EDX). Detected binding media: oil and resin; detected pigments: red (lead oxide red and cinnabar) and black (carbon-black).

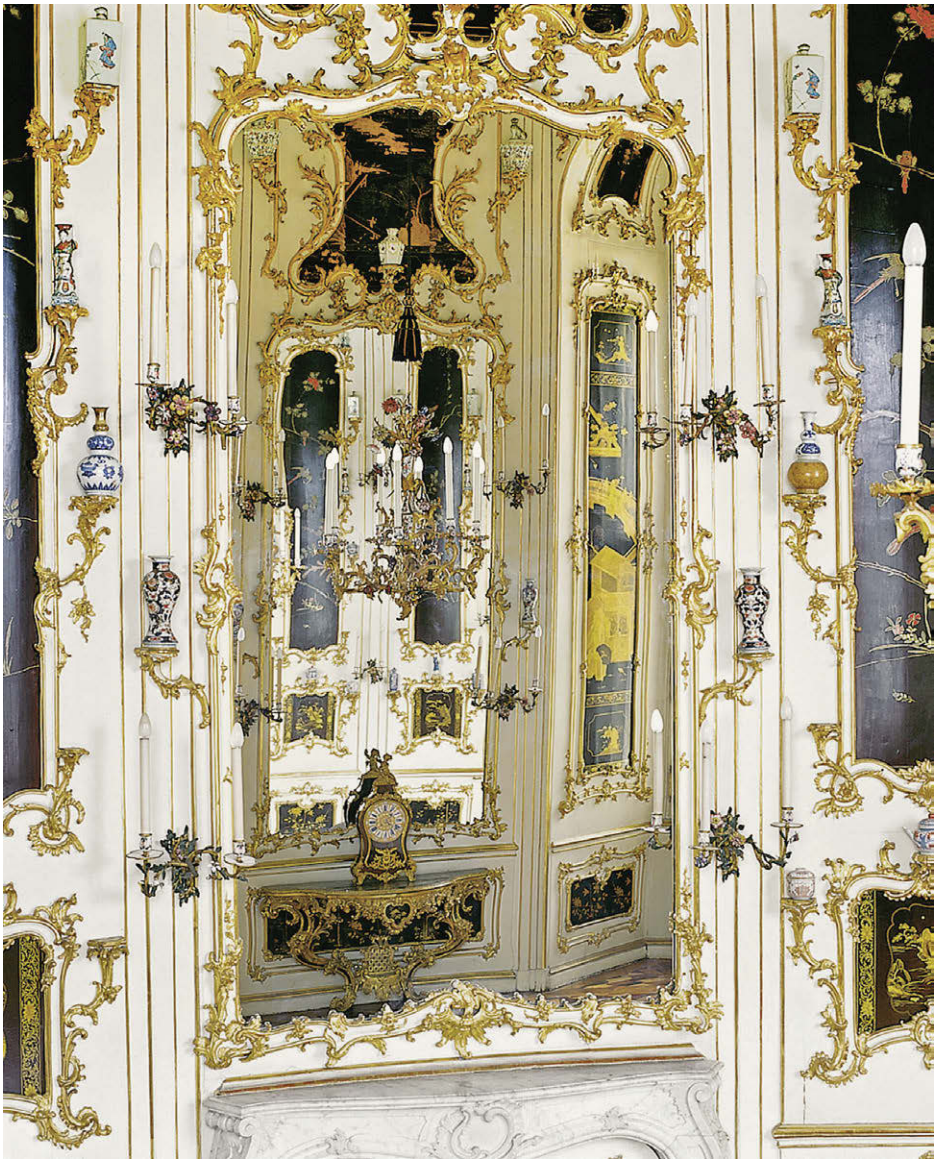

Fig. 2. View into the Oval Cabinet, © Schloß Schönbrunn Kultur- und Betriebsges.m.b.H./ photo by A. E. Koller.

Fig. 3. a) Figurine 2.5.13 MD 040677, China, Kangxi (1662–1722), © Institute of Conservation and Schloß Schönbrunn Kultur- und Betriebsges.m.b.H./photo by B. Müllauer, Sammlung Bundesmobilienverwaltung.
b) Vase 1.3.10 MD 040571, Japan, Kakiemon, Arita, 1670–1690; © Institute of Conservation and Schloß Schönbrunn Kultur- und Betriebsges.m.b.H./photo by B. Müllauer, Sammlung Bundesmobilienverwaltung.
c) Flask 1.9.1 MD 040592, Du Paquier Manufaktur Wien, 1730–35; © Institute of Conservation and Schloß Schönbrunn Kultur- und Betriebsges.m.b.H./photo by S. Olah, Sammlung Bundesmobilienverwaltung.

blue, red and gold, figurines in various facets, *famille rose* and *famille verte* vessels – shortly, nearly all possibilities of coloured glaze and enamel are present, accented by painted decor as mentioned above. In addition, some of the imported porcelains have been ornamented with European metal mountings[9]. Furthermore, considering the provenance of the mounted objects, the Round Cabinet is very homogenous: 117 porcelains of Chinese origin, mostly from the *Kangxi*-period, are combined with 5 Japanese porcelains and 8 European ceramics. In contrast, in the Oval Cabinet 27 European ceramics join 24 Japanese porcelains, 10 Japanese lacquer flasks and 61 Chinese porcelains (includ-

9 Metal mountings (7 in the Oval Cabinet and 3 in the Round Cabinet): 1.2.6 MD 040618; 1.3.10 MD 040571; 1.3.11 MD 040572; 1.4.10 MD 040573; 1.4.11 MD 040574; 1.5.10 MD 040575; 1.6.10 MD 040576; 1.6.11 MD 040577; 1.7.10 MD 040569; 1.7.11 MD 040570; 2.6.10 MD 040752; 2.7.9 MD 040734; 2.8.8 MD 040681.

ing all 8 blue and white porcelains).[10] So, in both cabinets, Chinese and Japanese originals are placed next to European ceramics which are in the style of Asian ware. The items Maria Theresia owned form the core of the collection, but obviously the latest presentation scheme is not the original one. Probably the set of objects on display underwent several changes throughout time. The stages of change are to be specified and dated in the course of the research project.

THE RESEARCH PROJECT "ASIAN INTERIOR DECORATION IN SCHÖNBRUNN PALACE"

This interdisciplinary research, supported by the Austrian Science Fund, focuses on the Asian interior decorations of Schönbrunn: in their completeness and material variety, the "Chinese Cabinets" – the Oval Cabinet and the Round Cabinet – and the "Porcelain Cabinet" are among the most significant testimonies of royal and aristocratic taste during the Baroque and Rococo eras as well as the resultant style which shaped European palatial decor of the period.[11] Ceramics (mostly porcelain) and lacquerware, which were Maria Theresia's focal points of collecting as well as the main materials represented in the "Chinese Cabinets", are emphasized in this project.[12] An additional field of research is the group of 213 watercolours in the Porcelain Room – *chinoiserie* themes relating to Francois Boucher painted by members of the royal family under the instruction of Jean Pillement[13]. Research prior to this project had been concentrated on the art and cultural historical aspects of these room ensembles.[14] As a result of the numerous questions that have arisen there was a strong wish to push fundamental conservational scientific research, as this is the key to properly illuminating the issues surrounding this extremely complex agglomeration. Within the context of the Schönbrunn collection, the areas of porcelain and lacquerware comprise of a compilation of East Asian originals, pieces with

10 Concerning the provenience and dating of all objects, this article refers to: Ebert, J., Die Asienkabinette in Schloß Schönbrunn – Trinksitten für Heißgetränke am Hofe Maria Theresias, unpublished manuscript, Wien 2009.

11 Iby, E./Koller, A., Schönbrunn, Wien 2007, p 90–127.

12 Iby, E. Schloß Schönbrunn – Weltkulturerbe der UNESCO, in: Maria Theresia und Schloß Schönbrunn, catalogue SKB/KHM, Japan 2006, p.174. Iby, E., Schönbrunn – Das Residenzschloss Maria Theresias;, , in: Maria Theresia und Schloß Schönbrunn, catalogue SKB/KHM, Japan 2006, p. 196.

13 Iby, E./Koller, A., Schönbrunn, Wien 2007, p 118. Gordon-Smith, M., 2004. Jean Pillement at the Imperial Court of Maria Theresa and Francis I in Vienna (1763 to 1765), in: Artibus et Historiae, Vol. 25, No. 50, p 187–213.

14 Iby, E., Koller, A., 2007. Schönbrunn. Vienna.

European additions and others entirely made in Europe.[15] Inquiry into provenance and the early history of the objects are of primary concern, as well as the production and conservation technology of individual ceramics. Research focuses on conservation history and the questions which treatments had been undertaken to preserve the objects over the course of the centuries, which of those could be considered as successful from today's perspective and where do we have to develop new strategies. The project generates the scientific basis for the future invitation of tenders and it steers the implementation of conservation measures, which are planned from 2014–2017.

Within the frame of this project the Institute of Conservation, University of Applied Arts Vienna is cooperating with the Schloß Schönbrunn Kultur- und Betriebsges.m.b.H. (SKB), who oversees the display of the objects in their original setting, and the Bundesmobilienverwaltung as the owners of the objects. Further cooperation involves the Museum of Applied Arts Vienna (MAK), which has an extensive collection of Asiatica including numerous porcelain and lacquerware items and provides the expertise of Manfred Trummer as a ceramics conservation specialist. Besides local cooperations in Austria, it is essential to enhance and expand international contacts in the course of this project. Thus, existing contacts to the National Research Institute of Cultural Properties, Tokyo (NRICP) are integrated in the work and a bilateral agreement was signed. The collaborations as well as the inclusion of additional external specialists and active exchange of information between the national and international bodies of research into royal and aristocratic residences enable extensive basic research.

The investigation of the laquerware panels presented in the "Chinese Cabinets" is covered by the conservator Silvia Miklin-Kniefacz. The paper conservators Karin Troschke and Doris Müller-Hess are working on the watercolours of the "Porcelain Cabinet".[16] The research output needed for conservation-restoration is considered important and is also implemented within the framework of two workshops. In this sense, the first workshop "The Conservation of East Asian Cabinets in Imperial Residences (1700–1900)" on 4th – 5th July 2013 initiated a kick-off for the research project, which started in April 2013.

15 Ebert, J., Die Asienkabinette in Schloß Schönbrunn – Trinksitten für Heißgetränke am Hofe Maria Theresias, unpublished manuscript, Wien 2009. Ebert, J., Japanische Porzellanflaschen des 17. und frühen 18. Jh. aus den Asienkabinetten in Schloß Schönbrunn, in: Laschan, E. (ed.), Austria-Japan, Tokyo 2008.

16 Beside the investigation covered by the project, further surveys and analyses required for future conservation work in the cabinets in their entirety are commissioned by the SKB and accomplish the research spectrum – for example the examination of the wooden panelling and the consoles by Stefan Kainz and Isabella Kaml.

Fig. 4. Mounting situation 2012, Vase 2.3.14 MD 040772: China, beginning of 17th century; decomposed glue – bond of the wooden structure opened; former conservation measures including vast overpainting, © Institute of Conservation and Schloß Schönbrunn Kultur- und Betriebsges.m.b.H./photo by B. Müllauer, Sammlung Bundesmobilienverwaltung.

THE PRESENTATION OF THE CERAMICS IN THE "CHINESE CABINETS"

Until 2012 all 252 objects were mounted onto the consoles. The cabinets were accessible only at special occasions. The overall impression of the rooms predominated and the individual objects did not receive much attention. During a first art historic examination[17] of the ceramics it emerged that for further investigation conservational expertise was indispensable.[18]

During the process of submitting the proposal to the Austrian Science Fund it already became clear that the current mounting situation posed a very high risk to the objects. In most cases, the last display arrangements had inadequate safety standards. In several cases items were mounted on consoles which did not correspond to their size. Some large and heavy objects were mounted on consoles too small, so that their bases extended over the edge of the supports. Others were mounted too close to the wall, touching the panelling.

17 Ebert, J., Die Asienkabinette in Schloß Schönbrunn – Trinksitten für Heißgetränke am Hofe Maria Theresias, unpublished manuscript, Wien 2009.

18 At this point we want to thank Wolfgang Kippes, former technical director of the SKB for the encouragement to submit a proposal to the Austrian Science Fund.

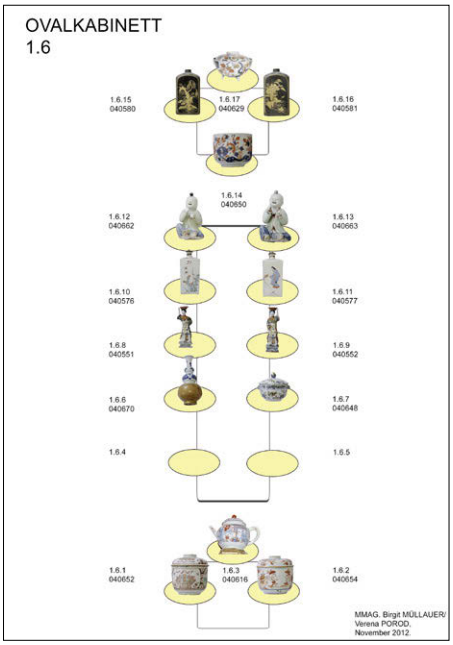

Fig. 5. Display scheme 2012, © Schloß Schönbrunn Kultur- und Betriebsges.m.b.H./ photo by B. Müllauer, V. Porod, Sammlung Bundesmobilienverwaltung.

This, in combination with the historic mounting methods, generated tension within the console, not only causing fissures within the wooden structures but also increased damage like cracks and breakage within the porcelain. This kind of display bears the risk of causing additional damage to the porcelain or to loosen bonds within fragmented pieces. Most of the consoles are deformed by ageing and material fatigue and in some cases the consoles were in such poor condition that the objects they displayed were at great risk of coming down on their own.

The glue within the structure of these consoles had decomposed and therefore the bond gave way under even minor additional load or pressure. So, some objects had to be dismounted with parts of the console. This multifaceted high risk situation formed the background for the decision to dismount the objects, even before the project had been granted. Before dismantling, position maps were made to document the last presentation scheme. In the mode of "cabinet/axis/console" each object was linked with its current inventory number to a position on a console.[19] Removing the objects from their mounts was carried out mechanically. At this point the actual damage on the ceramics as well as

19 Müllauer B./Porod, V./Fischer, E., Zustandserfassung und vorläufiger Maßnahmenkatalog der wandverbundenen Keramiken/Porzellane, "Chinesische Kabinette" Schloß Schönbrunn, unpublished report, Wien 2012. The survey during dismantling covered all consoles, including those currently empty (for example: position 1.6.8: Oval cabinet, axis 6, position 8; MD 040551).

Fig. 6. Holes in the bottom of vessels and figurines; metal bolt in the console, © Institute of Conservation and Schloß Schönbrunn Kultur- und Betriebsges.m.b.H./photo by B. Müllauer, Sammlung Bundesmobilienverwaltung.

the amount, variety, extent and chronology of previous interventions was not at all assessable. In the course of dismantling, a detailed visual examination and subsequent documentation of condition and damage of the objects was undertaken.[20]

TECHNOLOGICAL AND CONDITION SURVEY OF THE CERAMICS

The survey is based on a short object description including function, material, decoration and size. More than 50% of the pieces show breakage, fragmentation (up to 32 fragments per vessel) and loss of original substance. Compensation of these defects included a wide variety of adhesives, fillers and retouching media. The implementation of previous conservation measures determines the actual appearance of the objects. Also included in the condition survey are descriptions of the different techniques of mounting the objects onto the consoles (holes in the bottoms, mounting mediums, screws), and the historic inscriptions. All evidence provided by the ceramics themselves has been documented. During this initial examination, it became clear how massive the damage potential of

20 Krist, G., Bestandsaufnahme – Sammlungsanalyse – Musterrestaurierung (Schloss Greillenstein, NÖ), in: Restauratorenblätter, vol. 24/25 Großgemälde auf textilen Bildträgern, Klosterneuburg 2005.

these interventions was and is. The breakage and fragmentation, very likely caused by the system of attachment on the consoles, is to be addressed as the main origin of damage.

Research into the object's and conservation history demanded a closer look at this intervention and its consequences. The attachment of the objects on their consoles reveals different phases, methods and materials. Most objects have a drilled, ground or broken hole in their base[21] and are attached by metal bolts – the majority of them is screwed into the consoles.

As a consequence of breakage and loss of substance, the fragments were adhered and the lacunae filled. In the course of time, different materials were used on this purpose, natural and synthetic resins being the most common. In addition, during the most recent phases of conservation/restoration (1950ies – 1980ies), the objects have been extensively overpainted (see Fig. 4). Beside the fixation by screws, all objects have been fastened at least once by the application of mounting mediums. Regarding this measure, three main phases can be identified: shellac, gypsum and polyester resin (with the fillers: aluminium oxide, silicium oxide and barium sulfate) were the three materials most frequently used.

These mediums were identified via optical microscopy (OM), scanning electron microscopy – energy dispersive X-ray microanalysis (SEM-EDX) and Fourier-transform-infrared spectrometry (FTIR).[22] Obviously the use of polyester resin reveals the latest phase, but if gypsum or shellac were used first, could not be distinguished by now. The sequence of layers between object and console is not consistent – so possibly the usage of gypsum and shellac switched more than once. Primarily during the last display phase, polyester resin was not only put between object and console, but also poured into the vessels to affix them. Lids, if still extant, were also glued to the vessels during all three main phases of mounting by gypsum, shellac and/ or polyester resin. In many cases the lids do not correspond to the vessels onto which they are attached. As far as possible the lids will be allocated to the adequate vessels in the course of the project.

An effect of the gypsum mounting is that most of the historic screws with which the ceramics are affixed are heavily corroded. This presents a high risk for the porcelains, as

21 The holes will be systematically surveyed in quality and quantity in the course of the project (with a special focus on the traces of tools and usage).

22 Bayerova T./Bayer, C., Porzellanobjekte der "Chinesischen Kabinette", Schloß Schönbrunn, Wien, unpublished report, Wien 2012. The samples and cross-sections have been analysed by optical microscopy, scanning electron microscopy – energy dispersive X-ray microanalysis (SEM-EDX) and Fourier-transform-infrared spectrometry (FTIR in reflexion-ATR-mode). Scanning electron microscope: JEOL JSM 5500 LV with Gresham Sirius EDS-detector. Fourier-transform-infrared spectrometry: Nicolet 380 FT-IR Spectrometer, Thermo Electron). Results: 1.1.1 MD 40669 and 2.1.2 MD 040702: polyester resin, filler: silicon oxide, barium sulfate; 2.10.17 MD 040798: polyester resin, filler aluminium oxide; 1.2.7 MD 040561: gypsum; 1.7.14 MD 040665: shellac;

Fig. 7. Mounting mediums gypsum, shellac, polyester resin; Vase 2.8.16 MD 040738: deposits of mounting mediums gypsum, shellac, polyester resin, © Institute of Conservation and Schloß Schönbrunn Kultur- und Betriebsges.m.b.H./photo by B. Müllauer, Sammlung Bundesmobilienverwaltung.

corrosion products may intrude into the shard and cause stains and tension. The screws were analysed in regard to their production technology by Elisabeth Krebs, which is a first approach to date this intervention. Three phases can be assigned to the hardware: type 1 describes 6 handmade screws to be dated between 1760 and 1830; type 2 specifies about 220 screws made by an early turning machine and can be dated between 1800 and 1830; type 3 characterizes different forms of modern screws, all of them dated in the 2nd half of the 20th century. Regarding type 1 and type 2 it is assumed, that the handmade screws served as an exemplary sample for the purpose to fix the ceramics. After successful application the screws with mechanically cut threads were produced in this huge amount.[23] It has to be proofed, if they were already part of the original mounting strategy or if they were part of a later restructuring. At the moment the thesis concludes that the screws were not part of the original setting and mounting, but a later addition, probably after the Napoleonic Wars (1803–1815) – Napoleon resided at Schönbrunn in 1805 and 1809 and there was rebuilding work done in 1815. As the screws are to be perceived anyway as part of the history of the cabinet decoration they will be conserved, preserved in situ and included in the future mounting concept.

THE CONCEPT OF DISPLAY

As mentioned above, the ceramics mounted on the consoles in the "Chinese Cabinets" composite of East Asian originals and European *chinoiserie*. The arrangement of the individual objects on the consoles as interior decoration changed over the centuries and

23 Krebs, E., Holzschraubstifte in den Porzellanen der Asiatischen Kabinette Schloss Schönbrunn, unpublished report, Wien 2014.

so did the overall impression of the rooms. The objects' and the conservation history are tightly entangled with the display arrangements over time. Material analyses from the secondary interventions such as inventory numbers, mounting and early restoration materials combined with detailed examination on site and interpretation of historic sources substantiate the possibilities for working out a historiography of presentation schemes and mounting strategies.

An overall concept of the wall decoration by Maria Theresia is presumed[24]: "pairs of Asiatic porcelain were facing pairs of European porcelain"[25] – but the identification of the actual positions of the objects is still missing. It has to be figured out, if it is possible to (virtually) reconstruct the original presentation scheme. A timeline illustrating the phases of restructuring and how display changed, is being developed. Subsequent discussion will ask whether or not it is possible to reconstruct an original or historic setting or if the last presentation scheme will have to be repeated.

The historic inscriptions on the objects are valuable evidence for the research regarding the objects' early history, possibly providing information about their journey until they landed in Maria Theresa's collection, and they might also reveal something about historic exhibition modalities and display schemes. Many objects have more than one historic inscription.

The documentation of the inscriptions is structured in readability, transcription, surface, writing instrument and colour. Two groups of inscriptions are predominant – red numbers (represented on 54% of the objects) and combinations of number and letter written in a brown colour (represented on 86% of the objects). Two examples significant for the large groups of inscriptions are chosen for sampling: a red "3."[26] and a brown "7.D."[27]. Their binding media have already been analysed for the presence of lipid, resinous and proteinaceous binding media by gas chromatography – mass spectrometry (GC-MS)[28] at the scientific laboratory of the Kunsthistorisches Museum, Vienna (KHM). The results show burgundy pitch (spruce colophonium) for the red "3.", probably an inven-

24 Iby, E., Koller, A., 2007. Schönbrunn. Vienna, p 110.

25 Ebert, J., Die Asienkabinette in Schloß Schönbrunn – Trinksitten für Heißgetränke am Hofe Maria Theresias, unpublished manuscript, Wien 2009, p 25.

26 1.1.12 MD 040666

27 2.5.6 MD 040754

28 Grießer M./Pitthard, V., Untersuchungsbericht zu Bestellung IE_2012_0036 und IE_2012_0040, unpublished report, Wien 2012. The analytical procedure for the analysis of lipids is based on the transesterification of fatty acids and the determination of their relative ratios to identify particular lipids. The analytical procedure for the analysis of proteinaceous materials is based on an acidic hydrolysis of proteins to liberate amino acids, followed by the derivatisation and quantitative determination of amino acids as their silyl derivatives. Apparatus: GC-MS analyses were performed on a 6890N gas chromatograph connected to a quadrupole mass spectrometer, model 5973N (both Agilent Technologies, USA).

Fig. 8. a) b) c) Historic inscriptions: vessel with lid 1.6.17 MD 040629, Japanese Imari, Arita, 1710–1740, the vessel: – red 47 – brown 11.c; different inscriptions on the lid: – red 63 – brown 2.c, © Institute of Conservation and Schloß Schönbrunn Kultur- und Betriebsges.m.b.H./photo by B. Müllauer, Sammlung Bundesmobilienverwaltung. d) Inscriptions on the backside of the console: etiquette with "N 1 von Füllung IIII Saal 28/ oben – brown 4.D., © Schloß Schönbrunn Kultur- und Betriebsges.m.b.H./photo by S. Kainz.

tory number, and an intermixture of binding media (burgundy pitch, mastic, linseed oil and beeswax) for the brown "7.D.", probably an indication of the object's position in the room. In addition, various inscriptions on the backs of the consoles and other parts of the panelling have been discovered.[29]

29 Advisory information by Stefan Kainz commissioned to survey the condition of the consoles including their back sides.

Furthermore, extensive studies in historic archives and literature have been undertaken: information on the phases of renovations, repairs and conservation/restoration undertaken in the 19th century is gathered. Preliminary results of this first stage of research at the archive of the Bundesmobilienverwaltung which concentrated on inventory books, revealed that in 1803 all 303 consoles were occupied[30] and vast restoration/ renovation activities in advance of the Great Exhibition in 1873 were conducted. Some objects definitely joined the collection during the last decades of the 19th century[31] and another phase of renovation affected the Cabinets around 1900. During the 20th century the "Chinese Cabinets" were mentioned in archival sources, mostly around World War II: a revision was carried out in 1937[32], in 1944 the wall panelling was transported to the mines at Altaussee for security reasons[33] and brought back in 1948, when a vase from Miramar Castle (Triest, Italy) was also introduced to the collection[34]. From this time on the reconditioning and conservation of the palace was undertaken in order to facilitate public access.[35]

As regards visual documentation of the different display periods, the most relevant archives were consulted: Bundesmobilienverwaltung, Bundesdenkmalamt and Schönbrunn Palace. Research revealed a lithograph by Franz Heinrich[36] from 1855–60 and photographs from 1900 to 1969.

These photographs reveal the great difference in presentation schemes and give evidence for the varying position of objects – every documented period shows alterations. Objects not only switched their position in the room, but also changed cabinets. It is very likely that the original setting was differing from the schemes depicted since 1900. Maybe the original setting was similar to the lithograph by Heinrich. At any rate, we have so far only found this one view into the Round Cabinet from the middle of the 19th century. We are pursuing an attempt at reconstructing the original setting of the room, but the viability is depending on how much information can be gathered. The realization of a reconstruction further depends on the questions of proof and feasibility from a conservational point of view.

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30 Bundesmobilienverwaltung archive, Inventary book of Schönbrunn Palace, 1803 (I–122); room N. 28 "Oval Kabinette mit indianischen Lack und 138 Stück Porcellain Figuren und Wasen verzirt" and room N. 31 "Mit indianischen Lack und 165 d. Figuren und Wasen ferziehrt".

31 Bundesmobilienverwaltung archive, Inventory book of Schönbrunn Palace, 1878 registered: 2.6.9 MD 040769; 2.12.17 MD 040756; 1888 registered 2.4.8 MD 040765.

32 Bundesmobilienverwaltung archive, Revision 1937: Oval Cabinet: 111 out of 138 consoles occupied; Round Cabinet:159 out of 165 consoles occupied; additional note: one object has been stolen in 1942.

33 The mounted objects are not listed separately, but presumably they had also been brought to Altaussee.

34 2.10.13 MD 16827 originally this object was presented at Miramar Palace (Triest).

35 Bundesmobilienverwaltung archive, Revision 1949–50: 1948–49: starting conservation – restoration work, reconditioning and reopening of the *belle etage* for visitors. Oval Cabinet: 112 out of 138 consoles occupied; Round Cabinet:160 out of 165 consoles occupied.

36 Bundesmobilienverwaltung archive, see: Fig. 9a.

Fig. 9. a) Lithography by Franz Heinrich, view into the Round Cabinet, © Bundesmobilienverwaltung, Hofmobiliendepot, Möbel Museum Wien/photo by M. Haller.
b) Photo of 1944, view into the Round Cabinet, © Bundesdenkmalamt Wien.

What could be perceived throughout the archival research is that we are dealing with a very heterogeneous collection which fluctuated until the middle of the 20th century and that in 2012, when the pieces were dismounted, 51 objects were missing. A connection can be drawn between the phases of mounting and the phases of conservation work – on the objects and in the cabinets. A first step in the evaluation of the historic inscriptions has been made by the attribution of the brown position numbers. They are to be found most frequently on the ceramics and on the consoles. The setting of objects coordinated by these brown numbers has been reconstructed virtually and afterwards the result has been compared with historic photographs.

The photographs of 1937 and 1944 were most important for this comparison. In addition the plans of the revision 1937 were used. Further evidence proofed the numbering of the axes of the wall panelling. The numbering of 1937 is congruent to all following ones and to the labels occasionally stuck on the backside of some consoles, dating in the 19th century, but not to the numbering of axes given by the brown numbers. The photographs of 1937 depict several objects without these brown numbers – objects and the angle of vision can be exactly allocated – and the reconstruction of the presentation scheme based on the brown numbers reflects in huge parts the setting on the photos of 1944[37].

37 Archive of the Bundesdenkmalamt, Vienna. See Fig. 9b.

It can be presumed, that the brown numbers have been applied after 1937, probably in the short time frame of dismantling the whole panelling in 1944 in order to be brought to the mines of Altaussee, the war-storage.

A "wanted list" of the missing objects has been compiled using historic photographs of objects previously presented in the cabinets. It was possible to detect three vases in the "Breakfast Cabinet", located in the South-West corner of Schönbrunn Palace, which were displayed in the "Chinese Cabinets" before 1945. Mounted on the consoles there with metal bolts, they show brown position numbers, too. A further step along this trail was the inspection of the storage of the former Court Silver and Table Chamber and the MAK followed by another visit to the archive of the Bundesmobilienverwaltung. During research at the storage areas, the missing objects documented photographically could not be found, but many pieces comparable to those in the "Chinese Cabinets" turned up. However, it should be noted that none of these finds have a perforated bottom. Therefore, if they had once been mounted onto the consoles in the "Chinese Cabinets", it must have been before this drastic intervention.

CONSERVATION CONCEPTS

A main goal of the project – beside fundamental research – is to provide concepts for future conservation and restoration of the ceramics in the "Chinese Cabinets", envisaged to start 2016. To display a coherent historical ensemble in the sense of historic palace interiors, the discussion involves surveys of the wooden panelling[38], the lacquerware panels as well as the presentation of the objects on the consoles. Considering all these aspects, a new mounting strategy is being developed to provide a basis for future adequate and above all safe presentation of the objects on the consoles.

In regard to preventive conservation, the climate conditions (e.g. relative humidity, temperature, light/ UV[39]) are being recorded and measurements of vibrations taken[40]. Relevant are the visitors' traffic inside as well as the vehicular traffic outside Schönbrunn Palace and their influence on the condition of the panelling, the consoles and the objects, for the vibrations caused by the heavy traffic can pose a particular challenge to the new installation and mounting of the porcelains.

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38 Kaml, I., Fassungsuntersuchung an der hölzernen Vertäfelung im runden und im ovalen chinesischen Kabinett, Schloss Schönbrunn, unpublished report, Wien 2014.

39 Thomson, G., The Museum Environment, London 1993.

40 Johnson, A. P./ Hannen, W. R./Zuccari, F., Vibration Control During Museum Construction Projects, in: Journal of the American Institute for Conservation, vol. 52, no 1, 2013, p. 30–47. Vibration measurements in the "Chinese Cabinets" are carried out by Dr. Günther Fleischer/OFI Vienna.

Particular attention is also paid to the fact that the objects are part of the palace interior decoration, contrasting to a museum display situation, setting an interface between exhibition arrangement and the historical use.

"Inherent in any historic heritage is not only is a huge amount of intellectual and cultural perspective but its technical capital is also available. The question of what we can do, what means we should implement in order to preserve our architectural and artistic monuments must initially be formulated: what has made these monuments survive for so many centuries? Therein lies a still-untapped treasure trove of technological knowledge and experience, especially in the area of arts and crafts."[41]

Regarding historic conservation methods applied on the objects we have to distinguish – rooted in today's perspective – benefitting or damaging previous measures. During the survey, the objects are grouped by damage characteristics and conservational requirements. For the ceramics, subsequent conservation concepts with particular emphasis on the re-installation are being developed. Cleaning of the surfaces is recommended because of excessive residues of dust, adhesives and old mounting mediums – taking special care regarding the enamel decoration and the gilding as well as the cold-painted decor. Previous mounting mediums are to be removed completely from the objects and kept for further examination. Bonds are to be opened, fillings and retouchings removed, as are adhesives which are decomposed and yellowed – insufficient in a conservational and aesthetical point of view. Cold-painted layers are very fragile and thin and should therefore be consolidated. Finally the fragments have to be rebonded (e.g. with *Epo-Tek 301–2* or *Paraloid B72* – depending on static requirements), the losses refilled and the infills exactly retouched.

THE NEW MOUNTING CONCEPT

To guarantee safe and adequate presentation for the future, a new mounting concept is being developed. The historiography of mounting modalities is the basis for the development of a new presentation scheme. Therefore, comparative studies covering modes of display in comparable ensembles throughout Europe will complement the spectrum of research.

Developing a concept for flexible and sustainable mounting for the porcelains on the consoles of the wall panelling is of primary concern.[42] Indeed, the mounting of porcelain

41 Bacher, E., Anmerkungen zur Denkmalpflege in einer globalisierten Welt", in: Kippes, W. (ed.), Erhaltung des kulturellen Erbes und Zugang zum kulturellen Erbe in einer globalisierten Gesellschaft, Wissenschaftliche Reihe Schönbrunn, vol. 4, Wien 1997, p. 8.

42 According to the planned start of practical conservation work in the "Chinese Cabinets" in 2015, a

objects in historic rooms is a topic that has to date received little attention. The surfaces on which the objects in Schönbrunn Palace are placed are relatively small; as a result of material fatigue most of the consoles themselves are no longer exactly horizontal. An innovative presentation amalgamates the perspectives of preservation, functionality and visual appearance. Therefore, a novel concept of anchoring the pieces enables not only a secure presentation but also integrates the possibility of reversible affixing. This aspect of conservational technology calls for a series of tests to explore the implementation of various materials. To date, the use of adhesives and waxes for this purpose has been common practice.[43]

Due to the specific situation, an individual modification of the new mounting system is necessary for each object on each console. The objects and the consoles have to be individually considered.[44] Furthermore we have to consider the drilled holes, their dimensions and implementation, and damages caused to the objects (fissures, cracks or material losses). A stabile interlayer will be placed between the console and the object and it has to be precisely adaptable each object on each console. Secure attachment of the objects on the consoles has to be guaranteed and the reversibility of all applied material is essential. It should be aesthetically unobtrusive and should require a minimum of control and care.

As a first approach, magnetic or click-in systems, as well as those with a vacuum-suction effect or a combination solution[45] were discussed. At the beginning of the project, a pre-selection of possible material for this use was made and prototypes were produced.

Roughly, the systems developed combine elements of acrylic glass with metal (aluminium and chrome-nickel-steel) parts. [46] If the console is in a good condition, a disk of

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change in the schedule of the project was required – so, the answer to the question of re-mounting (mainly concerning envisaged interventions on the consoles) had to be given in January 2014, not as foreseen at the end of the project.

43 Buys, S./Oakley, V., Conservation of ceramics, London 1993, p 207–212. Lee, L.R./Thickett, D., Selection of Materials for the Storage or Display of Museum Objects, Occasional Paper 111, British Museum, London 1996. Williams, N., Ancient methods of repairing pottery and porcelain, in: Daniels, V. (ed.) Early advances in conservation, British Museum Occasional Paper 65, London 1988, p.147–50.

44 Object: its dimensions (base-diameter, height, maximum diameter), its weight, the shape of its base/bottom; Consoles: their dimensions (base, possible distance between consoles), their condition, the angle of the surface to the wall, the degree of slant to the left or to the right and traces of former mounting strategies, as for example the fixation of the screws or bolts in the consoles.

45 Krist, G./Müllauer, B., Asian Interior Decoration in Schönbrunn Palace – Conservation sciences for research, amendments and new perspectives on art and cultural history, restoration history of the Asian collection, unpublished proposal, Wien 2012, p 6–7.

46 These proposals illustrate a first step and require interventions in the wooden support – the panelling and/ or the consoles. If it is necessary to position the objects on new supporting surfaces to guarantee their static safety, possible systems could be either screwed to the panelling above the console or behind it, enabling the console to be re-attached to the wall as well. Possible structures on this new support

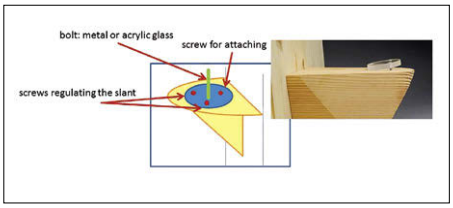

Fig. 10. New mounting concept I – an aspect, © Institute of Conservation/B. Müllauer, M. Trummer, A. Bezard, S. Olah.

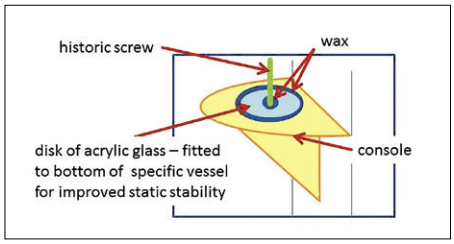

Fig. 11. New mounting concept II; © Institute of Conservation/B. Müllauer.

acrylic glass can be attached – fitted exactly to the bottom of a specific vessel. The slant of the console can be adjusted using screws. According to a thorough survey of the panelling and the consoles (all wooden parts), all consoles will be sufficiently statically stable to bear the weight of the mounted ceramics after conservation treatment.[47] Therefore it will not be necessary to reinforce the consoles on the panelling.

In the case of drilled bottoms, acrylic bolts can be used or the conserved and coated historic metal bolts can be reused. To define the best practice for the implementation of the interlayer further materials providing high flexibility for precise adaption were tested to decrease the necessary interventions in the wooden parts – tests included waxes and elastomers.[48]

Preliminary tests focused on the reversibility of the medium[49] from the ceramics and from the wooden parts, the strength of shape during application (curing time) and handling characteristics.[50] As the objects will be mounted on their conserved historic screws, the areas of contact between ceramics and steel will be isolated to prevent the contamination by corrosion products and to diminish transmission of vibrations. The slope of the consoles can be levelled. The results of these first tests indicate that waxes are to be favoured. The elastomers needed a support of e.g. wedges for stabilisation during curing time, were poorly reversible and partly emit by-products, whereas the waxes had good reversibility and handling characteristics. In addition, the areas of contact between ceram-

could be a cut-out in acrylic glass, a fitted ring of acrylic or a centred structure of acrylic glass, similarly custom-fitted to a particular object. For the fixation of objects with an intact bottom, a system of magnets was also tested, but turned out to be not feasible.

47 Kainz, S., Survey of the condition of the consoles, unpublished report, commissioned by the SKB.

48 Shashoua, Y., Evaluation of Tackywax as a Display Aid for Glass and Porcelain Objects, British Museum Conservation Research Report No. 37, London 1990. Oakley, V./Jain, K., Essentials in the Care and Conservation of Historical Ceramic Objects, London 2002, p. 22.

49 Banik, G./Krist, G., Lösungsmittel in der Restaurierung, Wien 1996[4].

50 These tests included: *Zhermack Knetsilikon*, *Akemi Marmorsilikon*, *Wacker M4641* with thixotropic agent added, *Kremer Klebewachs*, *Kremer Knetwachs* and beeswax with addition of 2% dammar.

ics and steel can be also isolated with wax. The *Kremer Knetwachs* and the beeswax (natural, bleached and with addition of 2% dammar) suited best and will be tested further.

The mounting system actually applied will combine the succeeding wax with the historic screws where present and/ or elements of acrylic glass, if needed for additional stability.

SUMMARY AND OUTLOOK

A thorough technological and condition survey generated the basis for the research into conservation history and future conservation strategies of the porcelains. The main focus was set on the new mounting concept, which will be composed of an interlayer of wax, the reused conserved historic screws and elements of acrylic glass. For the selection of the type of wax to be used further tests are envisaged. They will focus on the stability and flexibility during ageing, the danger of separation and intrusion of by-products (i.e. paraffin oils) into the console and/ or the unglazed parts of the ceramic shards (on the bottom, in areas of fracture), the dimensional stability in the relevant climatic spectrum and the stability related to the weight of the mounted ceramics as well as the adhesion of dust. An increase in the range of products for these further tests is foreseen and of course the results of the measurements of vibration will be integrated. Possibly it will turn out necessary to add supplementary layers of vibration debilitating visco-elastic material. According to results from the forthcoming tests, the mounting mediums for the future installation of the objects on the consoles in the "Chinese Cabinets" will be entirely defined.

Beside first results regarding the new mounting concept for the objects presented on the consoles, the display plan could be reconstructed for the period before the World War II. Subsequent discussion should clarify whether or not it is possible to reconstruct the original or a later historic display scheme, or if the last scheme of display will be maintained – in accordance with the examination results of the wall panelling and the lacquerware. This decision is crucial as, before the new mounting concept can be put in place, the position of each object has to be fixed.

A timeline tracing the history of the collection as well as the conservation history of the objects will be worked out, and in this context the evaluation of all visual historic sources and archival research will be continued. Forthcoming results of the GC-MS and FTIR analyses regarding the binding media and pigments used in the paint layers on some figurines and metallurgical analyses of two screws are expected soon.

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STEFAN HOLCIK

Theresian Porcelain Cabinets in the Royal Residence in Pressburg, Bratislava

ABSTRACT

Between 1766 and 1781 Albert Casimir, the Duke of Saxony and Teschen, lived in the royal castle in Pressburg (known as Bratislava after 1919), in his function as Governor or Viceroy (locumtenens) of Hungary. He was the son-in-law of the Queen, husband of the Archduchess Marie Christine. A new palace wing at the eastern facade of the Medieval castle was built for them. Several connecting rooms in the ancient building were re-established and redecorated. Two of them became "Porcelain Cabinets" containing the collections of East-Asian and European porcelain respectively. The ducal couple left Pressburg in 1780 for Brussels. Pressburg castle was destroyed by fire in 1811.

* * *

Bratislava is situated on the river Danube only 60 km to the east of Vienna. The town grew from the settlement under the castle hill in the 13th century. New inhabitants from Germany used the same name for their town which originally indicated the castle: Pressburg. This name is derived from the original Slavonic name, *Preslavva*, while the Hungarian name of the same town is *Pozsony*, also a name originating in another Slavonic word. The castle hill has been inhabited since the Stone Age. It was fortified in the Bronze Age, and later inhabitants of Celtic origin built strong defences around their settlements. It was reused and reinforced in the 9th century by the Slavonic tribes. Since the 11th century the castle was temporarily used by the Hungarian kings as their residence. The Hungarian royal court in the middle ages had no permanent seat. The court was ambulant. The king and his courtiers travelled within the country and took up residence in different royal castles. King Sigismund of Luxemburg inherited the Hungarian Crown from his first wife, Maria I of Hungary. In 1433 he was crowned Holy Roman Emperor of the Germanic Nation by the Pope in Rome. Already before 1430 he decided to build the new imperial residence in Pressburg. His huge palace was not ready yet when he died in December 1437, aged 69 years. After the occupation of the southern parts of the Hungarian Kingdom by the Ottoman Empire, Pressburg was chosen as the capital of the part of the kingdom not in enemy hands. Ferdinand I was elected in Pressburg in 1526 as the

future Hungarian king. From 1563 until 1830 the kings of Hungary were crowned in the St. Martin's Church in Pressburg (until 1830). The castle was also chosen to be the future permanent domicile of the royal crown *(sedes coronae hungariae).*

In the following centuries the royal palace was often rebuilt and redecorated. After 1570 it was completely overhauled by the Italian architect Pietro Ferrabosco, who concurrently rebuilt the main imperial residence Vienna, the Hofburg. In 1632 the upper storey was added along the towers on all corners of the old building, which originally had only two towers. On June 25th, 1741 Maria Theresia was crowned Queen of Hungary in the Pressburg Coronation Church. At the time of her ascent to the throne the royal palace was in a very poor condition. Having promised the Hungarians before her coronation to take up residence in Pressburg and to live on the territory of the kingdom for a longer period, Maria Theresia stayed with her family and the court until December 11 of that year. She occupied the state rooms in the *belétage*, previously rarely used. However, the poor condition of the castle buildings precluded safety for a family with small children staying for a longer sojourn, especially during the start of winter, so the queen returned to Vienna.

During subsequent years lack of funds curbed any investments the queen might have made into her official Hungarian residence. She (and the Hungarian kingdom) had to finance wars, so reconstruction did not start before 1761. Some important alterations were necessary. Prior to Maria Theresia's reign, during their brief visits to Pressburg, the monarchs used to live in the eastern wing; the rooms in the northern wing were reserved for their consorts. The areas in the south wing were the official state rooms. In 1761 Maria Theresia was Queen of Hungary, while her husband Franz Stephan of Lorraine was the Holy Roman Emperor. It was appropriate that she, as the ruling sovereign, should use the rooms in the southern wing. The apartments for her husband (despite his position) had to be laid out in the north wing. Their joint bedroom was situated in the middle of the eastern wing, accessible from both sides. The rooms were almost never used. The architect responsible was possibly Nikolaus Pacassi[1].

Soon after the death of Emperor Franz I Stephan in 1765, his and Maria Theresia's favourite daughter Archduchess Marie Christine married her 2nd cousin Albert Casimir, a royal prince of Poland and Saxony. From his mother-in-law (who was at the same time his aunt) he received the Dukedom of Teschen and was appointed Governor (*Statthalter*) in Hungary. The Pressburg Royal Palace became his residence. The couple lived in Pressburg for the subsequent 15 years. Despite the recent refurbishment, the old building did not suit Albert's requirements. A new palace had to be built: it was constructed as an annex to the old palace, abutting its eastern facade. There Albert started to collect prints

1 Koschatzky, W./Krasa, S., Herzog Albert von Sachsen-Teschen, 1738–1822, Reichsfeldmarschall und Kunstmäzen, Wien 1982, p.79.

Fig. 1. Floor plan, south-east corner of the palace, ca. 1770.

and drawings, the nucleus of the famous Viennese graphic arts collection later known as the Albertina.

The function of the *belétage* state rooms in the eastern wing of the old palace changed. Some of the original windows were reused as connecting doors. The erstwhile royal bedroom was rearranged as the drawing room "Aelteres Compagnie Zimmer" with a picture gallery. The room in the corner under the south-eastern tower is described as "Cabinet"in the plan of 1762. In 1770 the same room was renamed "Sächsiches Porcellain Cabinet". The neighbouring small room in the east wing, in 1762 "*Retirad*", around 1767 became "Cabinet de Portraits". In the project from 1770 it is designated as the "Japanisches Porcellain Cabinet".

Before 1783 a certain Gottfried von Rotenstein (the assumed name of Count Johann Palffy) visited the castle. He published his impressions of the interiors in the series "Johann Bernoulli's Sammlung kurzer Reisebeschreibungen"[2] in Berlin and Leipzig (1784). Later (1792) a book entitled "Lust-Reisen durch Bayern,……., Böhmen und Ungarn"[3] was published by Friedrich Schneidern in Leipzig, the part on Hungary written by the same *Herr (Edler)* von Rotenstein. In the Pressburg Royal Residence he also inspected the two porcelain cabinets, among other rooms. The Japanese "Porzellanzimmer" was decorated all in blue. On the walls were brackets ("Postementen auf den Wänden") supporting 117 "small and large Japanese blue vases"[4]. Between the porcelain objects on the walls, numerous small pictures in shades of blue were arranged, works by Emperor Franz Stephan and his daughters. In the adjoining corner room, the "Sächsisches Porzel-

2 Bernoulli, J., Johann Bernoulli's Sammlung kurzer Reisebeschreibungen und andere zur Erweiterung der Länder- und Menschenkenntniss dienender Nachrichten, vol. 10, Berlin/Leipzig 1783, p. 198–208.

3 Lust-Reisen durch Bayern, Würtemberg, Pfalz, Sachsen, Brandenburg, Oesterreich, Mähren, Böhmen und Ungarn, in den Jahren 1784 bis 1791, Theil 1, Leipzig 1792, p. 57–58.

4 Lust-Reisen durch Bayern, Würtemberg, Pfalz, Sachsen, Brandenburg, Oesterreich, Mähren, Böhmen und Ungarn, in den Jahren 1784 bis 1791, Theil 1, Leipzig 1792, p. 57–58.

lain Cabinet", von Rotenstein saw different European tea- and coffee-sets, a small table decorated with inlaid porcelain plaques and with the porcelain top decorated with the painted "name of Queen Maria Theresia" from the Sèvres manufactury, and several porcelain "*Figuren*" (figurines). One of them was identified as the family group of Archduke of Toscana Pietro Leopoldo (the later Holy Roman Emperor Leopold II.). The group is now in the collection of the Kunsthistorisches Museum in Vienna.

The author (whoever he actually was) was apparently very knowledgeable about Asian ceramics. It is possible that not all porcelain vases in the cabinet with blue decor really originated in Japan. Some of them could also have been Chinese products, and might even have included some pieces of Saxon porcelain in Oriental shapes with blue painted decor in Chinese or Japanese motives. Rotenstein also mentioned "very big Japanese vases"[5] on four tables with marble tops in the Mirror Room. In the "*Paradezimmer*" he saw 14 very rare grey Japanese vases ("*14 graue Japanische sehr seltene Vasen*"[6]) standing on tables. After 1766 the room known as the "Japanese Porcelain Cabinet" served as a passage connecting rooms in the older building with the ducal apartment in the new palace.

In 1784 the Emperor and King Josef II decided to transfer the Hungarian royal residence from Pressburg to the newly built castle in Ofen (Buda, now Budapest). Pressburg castle was rebuilt for the purposes of a Catholic priests' seminary. The furniture, art works and the movable wall decoration were brought back to Vienna and reused in various Imperial residences.[7] No inventory of the contents of the porcelain cabinets is known to date. It is possible that some remnants of the both cabinets might be in Vienna even now, as are the identified pictures[8], and possibly also the small blue paintings or drawings by the Emperor and his daughters. The blue drawings from Pressburg might have been incorporated (after 1784) into the wall decoration of the so-called "Porcelain Cabinet" in Schönbrunn Palace. Two oval reliefs (of four) with the portraits of Marie Christine and Albert of Saxony-Teschen in the same room would indicate some connection to their collection of drawings. After 1780 they left Pressburg for Brussels and never lived in Schönbrunn Palace as married couple.

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5 Lust-Reisen durch Bayern, Würtemberg, Pfalz, Sachsen, Brandenburg, Oesterreich, Mähren, Böhmen und Ungarn, in den Jahren 1784 bis 1791, Theil 1, Leipzig 1792, p. 57–58.

6 Lust-Reisen durch Bayern, Würtemberg, Pfalz, Sachsen, Brandenburg, Oesterreich, Mähren, Böhmen und Ungarn, in den Jahren 1784 bis 1791, Theil 1, Leipzig 1792, p. 57–58.

7 Lorenz, Hellmut; Der Leopoldinische Trakt 1705–1835: Barock und Klassizismus. In: Kurdiovsky, Richard (Ed.); Die Oestrreichische Präsidentschaftskanzlei in der Wiener Hofburg. Wien 2008, p.47.

8 Gruber, Gerlinde; Das Bilderverzeichnis der Pressburger Burg von 1781. In: Jahrbuch des Kunsthistorischen Museums Wien, vol. 8/9. Mainz 2006/2007, p. 354 – 400. Author's note: not all the pictures were identifiable. Some were only identified later (in the Hofburg, Schönbrunn, the Kunsthistorisches Museum) and were reproduced to hang in the reconstructed rooms in the *piano nobile* of the former royal residence in Bratislava.

Fig. 2. Bratislava. Former royal residence after restoration, ca. 1965.

Fig. 3. The residence before the fire of 1811.

The rooms in the Pressburg palace were not suitable for the seminary. Later the military took over the entire castle for use as barracks. In 1811 the old royal palace and adjacent buildings were destroyed by fire and not restored before 1954. Only a few spaces in the basement with solid vaults were continually used as military prisons until the end of the World War I. After the World War II the delapidated buildings were used as a cheap source of salvage construction materials.

During the reconstruction, which started 1954, it was not possible to renew the interior of the Theresian "Japanese Porcelain Cabinet". In the east wing of the palace remnants of Medieval architecture were excavated and exhibited. The space of the old "*Sächsisches Porcellain Cabinet*" was arranged into a very ugly, inadequate modern drawing room, with rediscovered Renaissance plasterwork and painted decoration (after 1570) in the window and in the neighbouring cabinet within the Medieval wall. During the recent reconstruction of the palace the *belétage* rooms (state rooms) were redecorated in the Theresian style. The original "S*ächsisches Porcellain Cabinet"* was rather small in the 18th century; now, however, the size of the room has been doubled. The wall decoration in the cabinet will also contain small brackets modelled on the originals in the Schönbrunn "Breakfast Room" ready for the collection of old Asian (Japanese and Chinese) porcelain.

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ELISABETH KREBS

Luck in the Guise of Misfortune – A Serendipitous Discovery Made During the Conservation of Imari Porcelain from the Imperial Silver Collection Vienna

ABSTRACT

Among the holdings of the Imperial Silver Collection in the Vienna Hofburg (Ehemalige Hofsilber- und Tafelkammer) is a small casket for money and jewellery from the estate of Prince Karl Alexander of Lorraine.1 Dating from around 1725, the casket is constructed of wood and faced with 28 plaques of Imari porcelain decorated with floral motifs and landscape scenes and enclosed in engraved silver mounts. The restoration of the casket, which necessitated dismantling it into its component parts, enabled damage to be remedied and also afforded insights into the way it was constructed. Around 150 playing cards and fragments of cards of various types were found to be concealed both in the secret compartments and behind the porcelain plaques. Revealing a very human aspect in the casket's construction, these playing cards had been used to compensate for the varying thicknesses of the porcelain plaques. The fragments were assigned to seven different types of playing card. When the casket was reassembled the playing cards were replaced with acid-free cardboard bearing information on the conservation works. Following the treatment the casket is now on display at the Imperial Silver Collection Vienna together with a selection of the playing cards.

THE ACCIDENT

On 27th May 2009, Mr. X was cleaning the windows in the Imperial Silver Collection Vienna. One ill-judged move later and he found himself making the intimate acquaintance of rare and exquisite Imari porcelain. Mr. X had fallen into the display case below the

1 Owner: Bundesmobilienverwaltung Wien, Inv.Nr. 180112/021. Barta-Fliedl, I./Parenzan, P. (eds.) Ehemalige Hofsilber- & Tafelkammer. Silber, Bronzen, Porzellan, Glas, Wien 1996, p. 133, cat. nr. 108. Pantzer, P./Hakenjos, B., Imari-Porzellan am Hofe der Kaiserin Maria Theresia, Ausstellungskatalog Hetjens-Museum, Düsseldorf/ Deutsches Keramikmuseum, 21.Juli–15.Oktober 2000, Düsseldorf 2000, p. 54, cat. nr. 20.

window, breaking two bowls and badly damaging a casket once used for storing money and jewellery. While the hapless window cleaner fortuitously survived the accident with only moderate injuries, the Imari porcelain objects required surgery. Three large dishes, that were also in the display case, survived intact. After all the shards and splinters had been secured and the total extent of the damage assessed, we received the commission to restore the objects. This paper will not only be concerned with the restoration of the porcelain but will give an account of the interesting discoveries – that is, the positive aspects that came out of this disaster – made during the course of the project.

CONSERVATION OF THE PORCELAIN BOWLS

Once the shards and splinters had been assigned to the appropriate objects, the constituent parts were cleaned, fitted together and bonded with epoxy resin (*Epo-tek 301–2*). A small number of areas had to be filled and retouched.

CASKET FOR MONEY AND JEWELLERY

The casket for money and jewellery originates from the estate of Prince Karl Alexander of Lorraine (1712–1780).

The object consists of a wooden case faced with porcelain plaques enclosed in silver mounts. The external measurements of the casket are 38 x 24 x 23 cm. The outer face of the casket is clad with 28 Imari porcelain plaques decorated with floral motifs and landscape scenes and enclosed in silver mounts. The reverse of the rolled silver mounts displays clear traces of a chisel-peen, evidently used to elongate and broaden the mounts. The mounts bear engraved and punched ornamentation in the form of C-scrolls and lions. The only variation occurs around the lock, which is decorated with perforated rhombic lattice-work. The engraving is enhanced with the additional use of matting and polishing. Traces of the original hand-polishing of the smooth surfaces have been preserved. The edges of this segment are matt, while the inner section is smooth and polished.

All the metal elements have been associated with the wooden components since the original making of the object. The silver mounts which hold the porcelain plaques in place are still fastened with numerous original hand-forged silver nails. They are not stamped but have been dated to around 1725. Both the casket's handles, however, were later restamped with the Viennese hallmark for 1806. On the reverse of the silver mounts are various numbers of punctiform markings arranged in lines corresponding to inden-

Fig. 1. Casket for money and jewellery after restoration, © Bundesmobilienverwaltung/photo by E. Krebs.

tations on the surface of the wood. Once the silver mounts and porcelain plaques have been removed, the inner construction is revealed to be a wooden box. The side walls are articulated by applied fillets into recessed fields which accommodate the porcelain plaques. Stained red on its visible surfaces, the wooden box has a removable inner case. The recessed niches on the inside of the casket formed six secret compartments, which were found to contain five Japanese coins made of aluminium and brass and a single one-Schilling coin. The lock is set into a recess in the wood and capped with a silver plate. The decorated escutcheon has its original threaded screws with rounded ribbed heads, while the flat head screws used for the lock plate were hand-filed. The screws still retain traces of the original blueing.

The outer fields are filled with plaques of so-called Imari porcelain, hard-paste porcelain from the town of Arita in Japan. The name Imari derives from the small nearby port of Imari, from where the porcelain wares were shipped to Nagasaki and the offices of the Dutch East India Company.[2] Arita and Imari belong to the present-day prefecture of Saga in the north of the island of Kyushu. Three colours predominate the painting of traditional Imari porcelain: cobalt blue, rust red and the white ground, with the motifs

2 http://de.wikipedia.org/wiki/Imari-Porzellan (12.10.2013).

Fig. 2. Discovery of the playing cards, © Bundesmobilienverwaltung/photo by E. Krebs.

highlighted in gold. The motifs in this case are primarily floral and landscape scenes. The present porcelain plaques have differing thicknesses and are slightly convex. The plaques are only partially glazed on the reverse. As the cut edges run straight through the ornamental motifs it is presumed that they were taken from some other object and cut down for use in this casket. The holes were also probably drilled at the same time.

THE DISCOVERY

On disassembly the porcelain plaques we made a surprising discovery which partly made up for the damage caused by the window-cleaner's accident. Between the porcelain plaques and the wooden corpus were numerous playing cards. These had presumably been used to compensate for the varying thicknesses of the porcelain plaques, that is, to ensure that the latter presented an even surface. The number of playing cards per plaque varies considerably and was dependent on its size and thickness. Cards were also torn up into smaller pieces to support the plaques. The playing cards were soiled or had water stains.

A number of cards had provided an incubation chamber and larder for various destructive insects. A total of 150 cards or portions of cards of various sizes were discovered in the casket. All these playing cards were printed in woodblock technique and most probably date to the 17th century. The size and design of the reverse and the figures allowed the playing cards to be assigned to seven games with French suits and two *trappola* games with Italian suits[3]. Apart from their use in the casket, they reveal that card games were a popular activity in this household.

3 Hoffmann, D., Die Welt der Spielkarte, Eine Kulturgeschichte, München 1972. Seipel, W. (ed.) Spielewelten der Kunst, Kunstkammerspiele, Ausstellungskatalog Kunsthistorisches Museum Wien, 21.Mai–2.August 1998, Wien 1998.

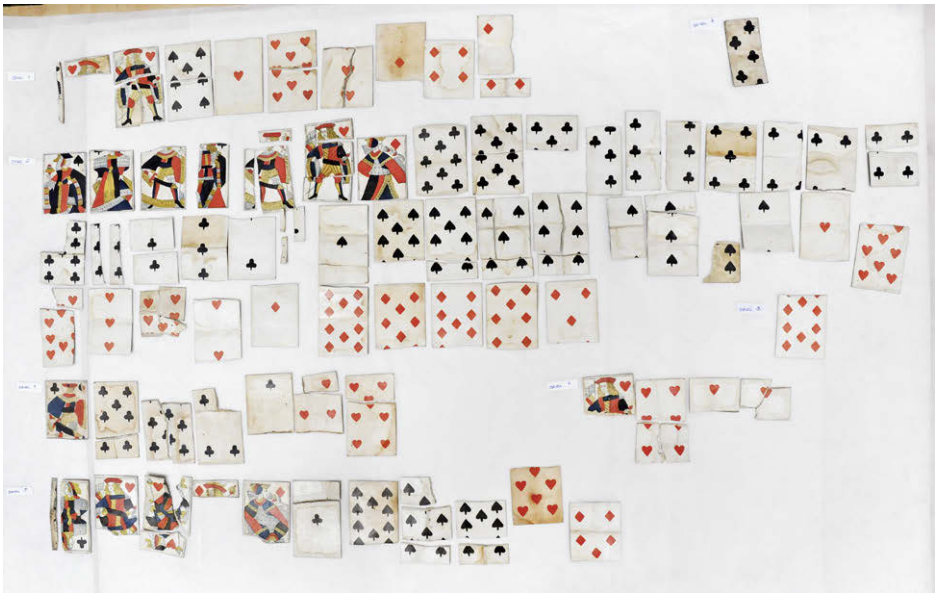

Fig. 3. Entire find of the French cards, © Bundesmobilienverwaltung/photo by E. Krebs.

Fig. 4. Entire find of the Italian trappola decks, © Bundesmobilienverwaltung/photo by E. Krebs.

Fig. 5. Italian trappola cards, © Bundesmobilienverwaltung/photo by E. Krebs.

Fig. 6. Script on the front of one trappola card, © Bundesmobilienverwaltung/photo by E. Krebs.

Coloured in red and black, the images on the French cards display the typical clothing of the time. Another typical French characteristic is the queen, who does not occur in the Italian *trappola* decks. The cards bear various different patterns on the reverse. The *trappola* game has cards of larger size and different design. Printed in four colours, the deck comprises the suits of staves, swords, coins and pitchers, corresponding to the more familiar suits of spades, diamonds, hearts and clubs.

The game was played by two to four players. A money chest or *bulka* was placed in the centre of the table in which each player placed his stake. The money then went to the first player to win three games.[4] Although surely a coincidence, it is somehow appropriate that these cards later became part of the construction of a money casket. One of the *trappola* cards is inscribed on the front and back in ink in *Kurrent* or Old German script, possibly intended as an endorsement, since card-playing was prohibited by law at that time.

DAMAGE TO THE CASKET

The surface of the object was damaged by the shattered glass of the display case. All the damage resulting from the accident was mapped and documented. Both the silver and the porcelain surfaces had been deformed and scratched by the mechanical impact of the glass in places. Two hairline cracks in the porcelain plaques had also been caused by the broken glass. The silver surfaces had darkened and spotted as a result of sulphide tarnishing. The recesses of the engraving contained traces of cleaning agents. Some minor deposits of copper corrosion products were found on the reverse of disassembled parts.

4 http://de.wikipedia.org/wiki/Trappola (12.10.2013).

Fig. 7. Broken porcelain plaques, © Bundesmobilienverwaltung/photo by E. Krebs.

Fig. 8. Porcelain plaques after dismounting, © Bundesmobilienverwaltung/photo by E. Krebs.

The silver mounts of the casket were damaged mechanically by the shattered panes of the glass display case. The metal exhibited a number of deep scratches and cuts of up to 1mm in depth accompanied by partial deformation, as well as chatter marks where the fragments of the panes had sheared off and fallen on the casket. The surface of the silver also displayed numerous historic scratches of varying dimensions that are not attributable to the recent accident.

The upper edge of the casket was distorted and warped. This resulted from deformation of the wooden corpus, which in turn led to the distortion and separation of the silver mounts. Along the forward edge of the casket the porcelain plaques had sunk. It is possible that this damage was compounded by the sheer force of the falling shards of glass. The mounts were displaced and/or mounted with an overlap. This damage was also in part due to climatic conditions and consequently to the movement caused by the hygroscopic properties of wood. The porcelain plaques were dirty, with extensive deposits of encrusted grime found in inaccessible areas such as under the silver mounts or in the corners.

The surface is scratched and the gold decoration badly damaged in places. Four of the plaques had already been broken and had been glued together at some point.

Dark residues of dirt had accumulated along the cemented edges of these breaks. There were numerous chips on the edges of many of the plaques. Two of the plaques had hairline cracks sustained in the fall.

Fig. 9. Traces of the original burnishing stone, © Bundesmobilienverwaltung/photo by E. Krebs.

The wooden corpus was extremely dirty and the stained red surface badly scratched. Glued joints had come apart. The upper transverse strip in the lid was misshapen and warped.

CONSERVATION AND RESTORATION

The primary aim of the conservation was to preserve the object. Surfaces were cleaned and breaks stabilized. The silver surfaces were cleaned with a decoction of soaproot and whiting, and green corrosion deposits removed mechanically. The removal of the silver sulphide layers was undertaken cautiously with regard for the preservation of the traces of original working processes.

The scratches and cuts caused by the glass breakage were minimized by applying pressure with a burnisher and burnishing stone. Complete removal of deep scratches was not considered desirable as this would have entailed loss of substance. Scratches caused by inappropriate cleaning on the other hand were removed almost completely by surface compression. Older deep scratches that had not been caused by the glass breakage were not removed. The silver surfaces were consolidated with a cellulose nitrate lacquer.

Following cleaning of the surface and removal of all residues of old bonding agents on the porcelain plaques the pieces were re-bonded with epoxy resin. Missing portions and chips were not remedied. The hairline cracks were also stabilized with epoxy resin *(Araldit 2020).* The wooden surfaces were cleaned and open joints re-glued with protein adhesive (*Hautchromperle/ Kaninchenhautleim*). Empty nail holes were plugged.

Following consultation with the authorities commissioning the conservation the playing cards were not replaced into the casket. Loose dirt was brushed off before the folded fragments and cards were smoothed out. The cards were sorted, grouped and photographed before being packed up and sent off to a paper conservator for further treatment.

The porcelain plaques and silver mounts were reassembled in their original positions using the original silver nails and corresponding nail holes. Missing nails were supplemented with brass nails with silvered heads. In order to ensure that the porcelain plaques and silver mounts were all level, acid-free card in varying thicknesses was used. The position of the silver mounts and porcelain plaques was centred and corrected slightly in order to minimize the gaps and overlapping present before the object was disassembled. The distortion in the lid was considerably reduced.

The casket together with a selection of the playing cards is now displayed in a new showcase at the Imperial Silver Collection in Vienna.

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FILIP SUCHOMEL

An Unknown Japanese Laquer Box from a Private Czech Collection: Former Property of Empress Maria Theresia

ABSTRACT

A unique lacquer casket with tea utensils was recently discovered in a private Czech collection; according to information on the bottom of one agate cup it had belonged to the Empress Maria Theresia. The object is a prime example of applied art from that period, combining an Oriental, Japanese lacquer casket, produced for the European market by Kyoto lacquer craftsmen, and a European tea set of three flasks and a cup. The porcelain flasks were created in the Viennese porcelain manufactory headed by Claudius Innocentius du Paquier probably around 1720. The cup is shaped from agate and finished with a goldwork inscription. It is well known that Maria Theresia owned a collection of Oriental lacquer art unique within Central Europe, which she later gave to her daughter Marie Antoinette, and it is likely that this piece was part of that set. At the turn of the 18th century exotic items were the height of fashion in Europe and this expensive Japanese lacquerwork is a clear example. In the homes of the nobility around Europe Japanese and Chinese lacquerwork and porcelain began appearing alongside new European products; together they formed a harmonious unit. Because the casket discussed here had no original content, it was completed with the addition of some early porcelain products created in conformity with contemporary European taste by the Viennese manufactory, which in its early days especially modelled its work on Japanese and Chinese originals, giving the entire set an Oriental feeling. The result is exceptionally timeless and sublime, a style that we can admire even today.

* * *

It is quite astonishing that at the beginning of the 21st century, artefacts of a truly unique nature can still be found in various art collections that have been little researched to date. In 1997 and 2002, the National Gallery in Prague held two exhibitions, the first devoted to Japanese export porcelain and the latter to Japanese lacquer art in Czech collections. On those two occasions, visitors were able to admire more than 500 unknown masterpieces, principally from Czech art collections.[1] To a certain extent, the collections in this

1 See: Suchomel, F./Suchomelová, M., Masterpieces of Japanese Porcelain, Prague 1997. Suchomel, F./Suchomelová, M., A Surface Created for Decoration, Prague 2002, p. 36–56.

geographical region shared a similar history, as they had been created in the territory of the Habsburg Monarchy. Although the monarchy was not a major trading power, its aristocracy's interests and fashion differed little from those in countries of Western Europe. Hence, in the monarchy, too, the enthusiasm for exotic Oriental objects, which members of the Austrian nobility acquired from various sources, came in several waves. As early as the reign of Rudolf II there had been unique art collections in Prague, containing a selection of artworks from the Far-East, especially Chinese porcelains and lacquer – though some of the lacquerware was probably of Japanese provenance.[2] After the Thirty Years' War, Central Europe – like Western Europe – met with contemporary tastes for the Orient and its curiosities or exotic themes in various waves of fashion. Although the region was greatly affected by the Thirty Years' War and later by the longstanding Turkish threat, which above all paralyzed the Empire's south, several unique art centers arose to reflect the ascent of Oriental tastes as early as the turn of the 17th and 18th century. Among others, Franziska Sibylla Augusta von Saxe-Lauenburg assembled an interesting collection of original Asian products before her wedding, including imitations of exotic lacquerware in the architectural decoration at her childhood palace in Ostrov (Schlackenwerth) near Karlovy Vary around 1694, but these acquisitions have not survived. Another example is the Sternberg Palace in Prague, where Bohemian lacquer master Jan Vojtěch Kratochvíl made a lacquer cabinet in 1709 to present a collection of Oriental porcelain and Delft faience.[3]

The first real porcelain cabinet room (known as the Dubsky Room; now housed at the Museum of Applied Arts Vienna) was created in the mid–1720s in a palace owned by Countess Maria Antonia Czobor (*neé* von Liechtenstein) on the main square in Brno.[4] The room was decorated with porcelain produced by Vienna's newly founded porcelain

2 For more details, see: Suchomel, F./Suchomelová, M., A Surface Created for Decoration, Prague 2002, p. 46.

3 The history of the Oriental Room in the Sternberg Palace, cited from: Grimm, U., Zu den Lackarbeiten am Hofe der Sibylla Augusta, Markgräfin von Baden-Baden, in: Kühlenthal, M. (ed.), Japanische und europäische Lackarbeiten, München 2000, p. 237–254. „In einem so weit entfernten Deutschen Palast vortrefflichste Seltenheiten so magnific und von einer so hohen Hand so nett rangieret".

4 Until recently it was believed that the well-known Porcelain Salon had been located in the Piati-Dubský Palace on Neue Fröhlichergasse since its foundation but it was moved there only in the last quarter of the 18th century when Emanuel Piati acquired the furniture from Carl Freiherr von Dobbelstein, heir of Countess Czobor's second husband Carl Hrzan von Harras. For a detailed description, see: Wittwer, S., The Real History of the Du Paquier Porcelain Room from the Palais Dubsky, in: Chilton, M. (ed.), Fired by Passion – Barockes Wiener Porzellan der Manufaktur Claudius Innocentius Du Paquier, Stuttgart 2009, p. 1030–1093. For more details about the Dubský Porcelain Salon, also see: Folnesics, J./Leisching, J., Das Porzellanzimmer aus dem Brünner Palais Dubsky im Österreichischen Museum, Wien 1913. And: Leisching, J., Das Altwiener Porzellanzimmer aus dem Palais Dubsky in Brünn, Der Cicerone V, 1913, p. 553–558.

Fig. 1. Jan Vojtěch Kratochvíl, Chinese room at Sternberg Palace in Prague, ca. 1709, National Gallery in Prague, © National Gallery in Prague/photo by F. Suchomel.

Fig. 2. Rectangular casket with portable tea set, Japan, lacquer workshops in Kyoto, ca. 1700, wood covered in natural lacquer decorated in *makie* techniques, 19,2 cm x 33,4 cm x 20 cm, Czech Private Collection, © photo by R. Boček.

manufactory.[5] Besides porcelain, such collections included lacquer work, especially caskets and jewelry boxes, which heightened the Oriental-like appearance of such cabinets, although only in few artifacts were decoration and functionality perfectly combined.

Yet there is one such object, recently discovered in a private collection in Bohemia: the remarkable tea set comprises of three porcelain flasks and an agate goblet, inserted into a portable lacquer casket.[6]

Tracing the history of this work of art, we find that it apparently originated from the Habsburg Renaissance castle in Brandýs nad Labem, a large country residence of the family, located 25 km from Prague. It is currently part of a private collection in Prague. The Habsburg collections were confiscated immediately after the First World War. Brandýs nad Labem Castle was given to the use of the State forest management and parts

5 For more information about the history of the Vienna porcelain manufactory in the Du Paquier period, see: Lehner-Jobst, C., Porzellan im imperialen Wien, in: Kräftner, J. (ed.), Liechtenstein Museum Vienna. Baroque Luxury Porcelain. The Manufactories of Du Paquier in Vienna and of Carlo Ginori in Florence, Munich/Berlin/London/New York 2005, p. 31–51. And: Chilton, M. (ed.), Fired by Passion – Barockes Wiener Porzellan der Manufaktur Claudius Innocentius Du Paquier, Stuttgart 2009.

6 See: Chilton, M., The Delights of Drinking, in: Chilton, M. (ed.), Fired by Passion – Barockes Wiener Porzellan der Manufaktur Claudius Innocentius Du Paquier, Stuttgart 2009, p. 710–713, p. 1248.

Fig. 3. Bridal dowry box with *aoi* crests and karakusa scrolls *(konrei chodo hako),* Japan, probably lacquer workshops in Kyoto, ca. 1800, wood covered in natural lacquer decorated in *makie* techniques; 29,8 cm x 15,0 cm x 14,6 cm, Collezione Garda, Milano, Italy, © photo archive of F. Suchomel.

Fig. 4. Rectangular casket, China, lacquer workshops in Canton, European fittings, ca. 1800, wood, metal fittings, *makie* imatation on black lacquer surface, 16,0 x 28,4 x 15,8 cm, Schloss Friedenstein Collection, Germany, © photo archive of F. Suchomel.

of these collections have been sold at auctions. The casket is a representative example of a masterpiece produced in Europe in the 18th century, in which various items that had originally been separate were brought together into a single whole to fulfill the special order of a wealthy client. This ensemble contains a lacquer box – at the time a lacquer article of utmost luxury, a typical export ware from the Far-East – and its contents, whose origins should be sought precisely in Central Europe, in Vienna's porcelain manufactory. The Japanese lacquer casket is a superb example of Japanese lacquerware intended for the European market. It is certain that this was an item purchased in Japan by Dutch merchants, the only ones who were allowed to do business in Japan in the period.

Similarly-shaped rectangular boxes are virtually non-existent in common Japanese lacquerware production, thus these objects seem to have been modeled either on small rectangular *chabako* boxes for tea utensils (though these were about half the size) or bridal dowry boxes *konrei chodo hako* (these had a much shallower lid).

A box for bottles from the Anton Ulrich Museum in Braunschweig warrants mention in the context of products designated for the European market. However, the box's lid is as high as its body is deep.[7] If we were to compare our box with similar surviving pieces

7 For more details about *chabako* boxes, see e.g.: Suchomel, F./Suchomelová, M., A Surface Created for Decoration, Prague 2002, p. 278–279. For details about *konrei chodo hako* see: Koyama, M./Vitali, F., Lacche orientali della collezione Garda, Milano 1994, p. 19. For details about the Braunschweig box, see: Diesinger, G., Ostasiatische Lackarbeiten, sowie Arbeiten aus Europa, Thailand und Indien, Braunschweig 1990, p. 93–95.

Fig. 5. A pair of octagonal jars with *makie* decoration of peonies and Chinese lions, Japan, lacquer workshops in Kyoto, end of the 17th century, Wood covered in natural lacquer decorated in *makie* design, h. 64,6 cm Ø 35,0 cm, Kynžvart Castle, Czech Republic, © Kynžvart Castle Administration/photo by R. Boček.

used to store tea flasks, we would find somewhat newer examples, for example, in Chinese lacquerware production designated for the European market from the turn of the 18th and 19th century, such as a piece from the collection of Friedenstein Castle in Gotha, Germany.[8]

These pieces show that the similarly-made boxes were not exceptional and older authentic examples of such boxes for tea utensils also existed, but have probably not survived in European collections.

Our piece is fully in keeping with the production of high – quality lacquer objects manufactured in large numbers in Kyoto in the late 17th and early 18th century. The lid of the casket has a dark-brown lacquer ground featuring a pair of *karashishi* lions encircled by blooming peonies; a butterfly lightly flutters between the two beasts. The ornamental theme derives from traditional Japanese iconography depicting the mythical Chinese lion with blooming peonies. Although the *karashishi* lion had been a favored motif, and representations of the beast can be found in many lacquer objects dating from Japan's Middle Ages to the 20th century, in the Edo period (1600–1868) the lions' design gained popularity through the early 15th century Noh theater play called *Shakkyo*, or "Stone Bridge", written by Zeami Kanze Motokiyo (1363–1443). The play tells the story about a Buddhist priest, and former wealthy Japanese businessman, named Shakusho, journeying to the holy mountain of Wutai in China. He makes a pilgrimage to see the grave of Monju Bosatsu, who is usually shown with an animal known as *shishi,* similar to a lion. It often depicts a parent lion training its young cub. Those motifs were frequently painted on Japanese lacquer objects made for the European market from the second half of the 17th century.

Similar compositions also decorated Japanese porcelain manufactured in Arita. On the lid of our box, the boldly painted bodies of the running lions are rendered in the gold *usuniku takamakie* decorative technique, complemented by finely drawn *tsukegaki* lines.

8 See: Bräutigam, H., Schätze japanischer Lackkunst auf Schloss Friedenstein, Gotha 1998, p. 56.

Fig. 6. Portable tea set consisting of three hexagonal porcelain flasks and one agate goblet (contents from the box illustrated in Fig.2), flasks, porcelain decorated in overglaze decoration with gold mountings, Vienna, ca. 1720, h. 15,7 cm, Ø 9,2 cm, Agate goblet with gold mountings, Vienna, 1720 – 1730, h. 5,8 cm, Ø 12,5 cm, Czech Private Collection, © photo by R. Boček.

The peonies and the butterfly are painted in gold and silver *usuniku takamakie* and *hiramakie*, highlighted with fine *tsukegaki* lines. The *makie* peony and butterfly motif spills over from the lid to the front, sides and back of the casket but is less ornate there than on the top. The anonymous lacquer artist employed the *nashiji* lacquer technique to decorate the individual panels, thereby heightening certain details of the scrolling foliage. Over the centuries, however, the lacquer has degraded in most places and is discernible only in some areas of the box.[9]

As was customary with other such objects, European merchants had copper gilt fittings additionally affixed to the corners, lock area and edges of the casket of this piece. The lid has a handle in the form of a bamboo stalk attached to chrysanthemum flower mounts. This part of the copper ornamentation appears highly authentic and may

9 For more details about lacquer techniques, see e.g.: Suchomel, F./Suchomelová, M., A Surface Created for Decoration, Prague 2002, p. 9–16. And: Heckmann, G./Dei Negri, J., Urushi no waza, Japanese lacquer technology, Ellwangen 2002.

have been fashioned somewhat earlier than the metalwork covering the edges, corners and lock area, and the hinges holding the lid to the box. The original lacquered inner walls are lined with green velvet and tinsel, with only narrow strips of lacquer showing. Whereas the mounts were probably added at a later date, giving the piece with its present appearance, there is no doubt that the fittings inside are original.

The three hexagonal flasks are made of hard-paste porcelain, decorated only around the base with scrollwork, Artemisia leaves and delicate floral motifs, all painted with low-fired enamels. Even though they lack an identifying mark, the flasks are unquestionably the work of the Vienna porcelain manufactory, datable to its early du Paquier period between 1720 and 1725.

The shape of the flask seems copied from other Far Eastern, perhaps Chinese, goods or Chinese ware emulating Japanese production that served as favored models for the first European porcelains in most of the oldest European factories. Similar narrow-necked hexagonal flasks were part of the Chinese and Japanese workshops' repertoire as early as the late 17th century.

It seems, however, that Asian potters might also have used older European models, which were supplied to the Far-East as tin ware by European traders from East Asian companies who commissioned Asian products.[10] The flasks were subsequently fitted with superb gold mounts adorned with delicate filigree work, strips of which run the length of the walls of the otherwise virtually plain bodies. The placement of the flasks in a lacquer box with ornamental fittings fully conformed to the way the consumption of exotic beverages, such as tea, coffee and chocolate, was perceived in those days. Storing European porcelains and glassware in lacquer receptacles was in fashion in the first half of the 18th century. Typically, original Japanese and Chinese containers would be cut into pieces and then reassembled to form new containers considered more attractive at the time. Afterwards, these altered pieces were fitted with gold mounts or, alternately, the original containers were left intact but their interiors were adapted to suit different purposes. The altered lacquer boxes then served as protective cases to hold flacons with perfumes. Vessels for the storage of aromatic substances known as *potpourri*, which became especially popular in the mid–18th century, were usually made of lacquer.[11]

The set of flasks is accompanied by a slightly conical, translucent agate goblet set into gold mountings with two handles featuring a perforated, elaborately wrought rocaille design. The base of the mount is decorated with lozenge-shaped patterns that have four-

10 For models of shapes of Far Eastern porcelains earmarked for the European market, cited from: Impey, O., Japanese Export Porcelain, in: Porcelain for Palaces, London 1990, p. 25–34. And: Suchomel, F./ Suchomelová, M., Masterpieces of Japanese Porcelain, Prague 1997, p. 17–23.

11 For more details, see : Wolvesperges, T., Le meuble francais en laque au XVIIIe siècle, Bruxelles 2000. And: Kopplin, M., Japanische Lacke. Die Sammlung der Königin Marie-Antoinette, München 2001.

Fig. 7. Hexagonal bottle decorated with a gilded brass European mount and a painted *shochikubai* motif (three friends of winter), Japan, Kakiemon kiln 1670 – 1690, Porcelain decorated in cobalt blue and overglaze enamels, h. 7,7 cm, Ø 12,6 cm, National Museum Prague – Náprstek Museum of Asian, African and American Cultures, Prague, Czech Republic, © National Museum Prague/photo by M. Posselt.

lobed florettes. The underside of the goblet has an engraved inscription that reads: "De la cassette de the del'Imperatrice Marie Therese" written in script on prepared lines.

The goblet is a luxury ware produced in the 17th and early 18th century in Vienna. Its gold overlay echoes the style of decoration on the flasks, both of which are clearly the work of the same goldsmith's studio. If we accept the authenticity of the inscription on the underside of the goblet, then the lacquer casket can be connected to the Japanese lacquerware in the possession of the Holy Roman Empress Maria Theresia. The inscription, however, is quite likely to have been engraved only after the individual pieces of the set had been made. Furthermore, because the inscription is written in Italian, it can be assumed that it was engraved on the goblet later, maybe even longer after the death of Maria Theresia. The author of this inscription was probably someone of the Italian branch of the Habsburg family. It could be the reason why the item finally came into the collection at the castle in Brandýs nad Labem, owned by the Italian branch of the

Fig. 8. Agate goblet (detail of the bottom of the goblet with short engraved inscription), Vienna, 1720 – 1730, engraved description 1st half of the 19th century (?), h. 5,8 cm, Ø 12,5 cm, Czech Private Collection, © photo by R. Boček.

Habsburg family. Maria Theresia is famed for her superb collection of Japanese lacquerware, a part of which she donated to her daughter Marie Antoinette, the later Queen of France. However, most items in that lacquer collection, now housed in Versailles, date from a later period and, compared with this casket, differ somewhat in their style of decoration.[12]

It is beyond doubt that this portable lacquer casket containing tea utensils is a superb example of the use of Japanese lacquer products in Europe. The accessories suggest that the item served a wealthy person of a high social status who was able to appreciate the delicate blend of ornamental restraint and lavishness featured in the individual pieces of this artwork. We can therefore corroborate the theory concluded from the inscription on the bottom of the goblet, which proposes that the casket was once the property of the Habsburg Empress Maria Theresia who possessed other lacquer works as well and who had free access to products from her own porcelain factory. The casket can therefore

12 Kopplin, M., Japanische Lacke. Die Sammlung der Königin Marie-Antoinette, München 2001. And: Nagashima, M., Edo jidai no yushutsu shikki. Maria Antowanetto no korekushon wo chushin ni, Shikkoshi XX 1999, p. 25–66.

be ranked with Japanese lacquerware of the finest kind, as similar artefacts that would combine exquisite lacquer work, Du Paquier-Period Vienna porcelain and delicate gold mountings are seldom to be found anywhere in the world.

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ANNA EKIELSKA

Chinese Porcelain for the Palace – From Oriental Porcelain in the Inventory of Wilanów Palace, Warsaw

ABSTRACT

The inventory of the Wilanów Palace compiled in 1793 for Izabella Lubomirska gives a detailed insight into all kinds of the furnishing and decoration of the palace interiors. As archival documents reveal, Chinese porcelain held a special position in the decorative arts. Detailed lists of porcelain together with descriptions of its decoration allow us to determine its actual presence and use in the late 17th-century palace but also the care, maintenance and value placed on the ceramics at the time. The social position of the owner Izabella Lubomirska, a member of the elite of European aristocracy, permits to extend the observation based on the Wilanów inventory onto more general view. The history of the Wilanów Palace, where the inspiration for all things Chinese was omnipresent at all stages of the European fascination with Orientalia from the 17th to the 19th century, provides an extensive background for an examination of the key points of the late 18th-century fashion for Chinese porcelain.

* * *

The inventory was written for the lady of the house at the time – Izabella Czartoryska Lubomirska. She was called "la Princesse Maréchale" and as a Czartoryski she was a member of one of the wealthiest and most influential princely families in the old Poland. "Elle est née malheureuse, tous les avantages gu'elle a reçus de la nature ne feront jamais son Bonheur ni celui de ses entours".[1] Her ancestors belonged to "first and exquisite Polish homes" as her birth certificate from 1736 indicates.[2] To give a quick insight into her position in the country and Europe it is enough to mention that at young age she was the dearest cousin and "sweet friend" of the future Polish King Stanisław Poniatowski, whom she was not allowed to marry because of his lower financial and social status.

1 Quotation from the letter of Madame Geoffrin to Polish King Stanisław August, 22 X 1770, Correspondence indéite du roi Stanislas-Auguste Poniatowski et de Madame Geoffrin (1764–1777), Paris 1875. „She was born unhappy, none of the advantages which nature bestowed upon her could ever make her happy, nor those around her."

2 AGAD, APŁ 136/1, Liber baptisatorum, urodzeni 1729–1750. Archiwum Parafii Św. Krzyża w Warszawie.

Instead she was married, at her father's will, primarily for political expediency, to Prince Stanisław Lubomirski, future marshal of the Polish parliament. Her social status entitled her to call herself a friend of Marie Antionette, she sheltered French fugitives in 1792 and 1793 in her residence in Łańcut (southern Poland) and in Vienna. In Łańcut one of the guests was Bishop de Sabran, Marie Antionette's personal confessor. For some time also the Count of Provence – the future King Louis XVIII – and his court resided in Łańcut. As her contemporary had noted, even her taste was always à la mode, always very sophisticated, following the latest fashions of European palaces. Her residences in Poland were largely altered after her lifetime, or did not survive, so today we have only scant evidence and traces of the taste and style in which she arranged the interiors of the palaces. In 1781 the Prussian diplomat Ernst Ahasverus von Lehndorff wrote after visiting the Mokotów – which was the *jardin anglais* created from 1774 by Lubomirska in Warsaw, consisting of a small villa and several picturesque pavilions and even a *hameau*: "The residence is amazing, but the amount of the small temples, grottos, tents, country houses is tiresome. […] The decoration of everything is magnificent, you may say fabulous. […] Porcelain is regarded here too vulgar. The chandeliers are of rock crystal. […] A Parisian sybarite would not expect to find something like that in the country of Sarmatians."[3]

The Wilanów residence, which will be our main focus, was inherited by Izabella Lubomirska from her father. It is a former royal residence, build by King Jan III Sobieski in the last quarter of 17th century as a private countryside summer palace. After ownership by the royal family, Wilanów belonged to Elżbieta Sieniawska, Izabella Lubomriska's grandmother. For Izabella, Wilanów was one of her many residences, taking a rather second place after the Warsaw Palace, on the main city street. Wilanów is outside the town, and because of its historic associations – it was always regarded as important and cherished monument commemorating the Sobieski Kings – did not afford many possibilities of arranging the rooms. We know from archival sources that Izabella decorated and furnished her own apartment in the left wing of the palace, which was built in the first quarter of 18th century. At the end of the wing she also built a bathing pavilion consisting of a cabinet, bedroom and bathroom salon, erected between 1775 and 1778 by the architect Szymon Bogumił Zug. The original decoration of the apartment and bath pavilion is known from description in the palace inventory compiled in 1793[4], shortly before Izabella transferred the Wilanów residence to her daughter Aleksandra. We still have some examples of original elements from her interior furnishings in the historical

3 Zawadzki, W. (ed.), Polska stanisławowska w oczach cudzoziemców (Poland of the Times of Stanisław August Poniatowski in the eyes on foreigners) 1963, vol. 2, 28, p. 31–32.

4 AGAD, AGWil.166, Inwentarz Pałacu Willanowskiego y wszystkich w nim znaydujacych się Meblów Obrazow etc. Diebus Septembris 1793 spisany, (Central Archives of Historical Records, AGWil.166, Inventory of the Willanów Palace and all the Furniture, Pictures etc. Diebus Septembris 1793 written).

collection of the Wilanów Palace, but most important is the description of the whole palace detailed in the inventory.

Lubomirska's apartment consisted of three rooms: a Front Room, Salon and the so-called "Golden Bedroom". The walls of the Front Room were decorated with English wallpaper "in celadon colour with a border of roses and different flowers".[5] Arabesque decoration adorned the areas above the doors. Furnishings consisted of a mirror, an English clock, two console tables, a French clock, a harpsichord, a card table, also several paintings.[6] The bedroom walls were hung with wallpaper in different designs, painted arabesques with vases and Chinese figures. The inventory mentions some porcelain objects in this room: "Two Chinese men on the bronze stands gilded with chandelier in one hand and brown kipa on the head".[7] "Two porcelain birds on the trunks with leaves around, beaks and some leaves braked off".[8] "Two cups of Vienna porcelain with lid with different flowers with gilded trim".[9] The bathing pavilion which was connected directly to the private apartment had three rooms: cabinet, bedroom and bath salon with a tiny *boudoir* – a niche.

Very few objects of any kind of porcelain are mentioned in all the palace interiors. The inventory is very detailed, describes room together with the floor, window and wall decoration, furniture, paintings on the walls together with details of the subject or composition. What we can extrapolate reading the document is also very few decorative objects – figurines, vases, chandeliers etc. Between those about a dozen of porcelain objects is mentioned, and a half of them are described as Chinese or Japanese. They are: a small angular Japanese pot, a lidded cup of Japanese porcelain with a tray, cups of Chinese porcelain with gold. But as we run through the inventory we also find the so-called treasury located on the first floor in the palace's northern wing. The document lists there groups of items called "Chinese porcelain", "Saxon porcelain", "Chinese porcelain from Mokotów taken in 1793", "Set of knifes and spoons, glass of different kinds".[10] Closer examination of the lists indicates that porcelain described as Chinese is more numerous than that from Saxony, and it is organized in bigger groups, although given information, specially the description of the decoration, leaves some doubts if that were in fact sets in the meaning of formal set of dishes with identical decoration. The dishes are described in groups of the same shape and size or type: serving plates, bowls, saucers etc. Some of the groups are described also with the colour and design of the decoration. Only sometimes

5 Inwentarz: 155. (Inventory).
6 Inwentarz: 156. (Inventory).
7 Inwentarz: 165–166. (Inventory).
8 Inwentarz: 166. (Inventory).
9 Inwentarz: 166. (Inventory).
10 Inwentarz: 134–154. (Inventory).

following groups of the dishes are described as "from the same suite" sometimes as "of the kind" or "the same". The inventory names Chinese porcelain in two sets, altogether about 730 pieces, about 263 in set I and about 467 in set II organized in groups described under 73 positions of the lists. The types of dishes are as follows:

The set I consists of:
– bowls (100 pieces of 4 different sizes: 22 ½, 20 ½, 18 ¼, 14 ½ inches)
– small serving dishes (described as for salad (saucers?): 10 pieces of two sizes
– serving dishes: 4 pieces
– small bowls: 46 pieces of two sizes
– plates (described as "for table"): 95 pieces
– salt cellars: 10 pieces
– small jugs: 2 pieces

The set II consists of:
– bowls (deep): 4 pieces of two sizes
– serving dishes: 2
– bowls: 4 in two sizes
– dishes (small): 11 pieces of 3 sizes
– small serving dishes: 3 pieces
– small bowls: 11 of different sizes and decoration
– tureens: 25 pieces of different sizes (from huge – 11 ¼ inches to 8 inches big)
– plates: 69
– small bowls: 10
– plates :47 pieces (deep 14, flat 25, white 8)
– cups in pairs (cup with saucer?): 12
– bowls: 5, 4 large flat (18 inches), 1 of the same set 16 ½ inches
– dishes: 11 of two sizes
– small tureens: 4
– plates of 9 ½ inches: 43
– small tureens: 8 (of two sizes and designs)
– vases: 16 in three sizes
– dishes: 7
– plates (described as Dutch!): 13
– cups for chocolate: 34
– one sugar bowl with tray
– cups with "ups and downs" (cover and saucer?): 9
– small tureen

– cup (oriental shape)
– small pots for tea: 2 (with different design)
– small cups with saucers for tea
– urinals (of Saxon porcelain): 6 pieces
– salt cellars: 2
– jugs of different sizes and designs: 9 (in that 5 described later as Saxon, 1 as Japanese)
– two big Japanese bowls
– vases (of this set, two sizes): 5
– vases: 10
– plates (Chinese of different colours): 64 or 69
– small serving dishes of two different sizes: 7

The first impression upon reading this long list of objects is that this surely does not represent two complete sets of dishes, of the same design, or of different designs completed to create formal sets dedicated to serve specific dishes (dinner set, dessert set etc.). Those dishes are not formal settings, but rather two collections of dishes, described in the document as sets. It may be a result of the organization of their storage or any other simple and very down-to-earth reason. Some rather basic types of dishes are mentioned only in set two: tea or coffee cups, vases (different from tureens). We can certainly say that we are dealing with an abundance of various kinds of porcelain wares, described as Chinese, although in few cases they are differentiated as Japanese, Saxon or Dutch. This was porcelain for daily use, even including 6 urinals. And it reflects the contents of the so-called treasury – in fact of a pantry for storing porcelain, glass and cutlery. The inventory indicates that some groups of objects might be part of a formal set, as indicated by differing sizes and designs, as, for example:

In the so-called first set at position 9 and 10 we find:

"Nr 9. Small bowls with lace of circles on the edges, in the middle circle in which flower, around it another flowers, of 8 ½ inches – 24 pieces

Nr 10. Small bowls with different persons painted on the edges with colours, in the middle one on the horse with banner, of 9 inches – 22 pieces."

In some examples we have listed one after another dish of the same shape and decoration but of different seizes. In set I:

"Nr 1. Big bowls with the edges painted in different colours, in the middle Chinese persons on horses, another sitting in the galleries, of 22 ½ inches – 15 pieces

Nr 2. Bowls of this suit of 20 ½ inches – 16 pieces

Nr 3. Bowls of this suit of 18 ½ inches – 16 pieces

Nr 4. Bowls smaller of those suit 16 ½ inches – 21 pieces
Nr 5. Bowls even smaller of 14 ½ inches – 32 pieces."

The number of pieces in both sets together is really impressive if we group them according to shape or usage.
– 154 vases or tureens or dishes for serving the food
– 178 bowls (from large to small salad-bowls aka saucers)
– 267 plates
– 62 cups for tea or coffee, for chocolate and oriental-style cups
– 10 salt cellars, 1 sugar bowl, 4 jugs and 6 urinals.

Knowing that we are dealing with a large number of dishes of different seizes and design the question of their real character, about their origin must be asked. Were they really "Chinese porcelain", on what basis was the differentiation between Chinese and Saxon porcelain made, and what about those very few mentioned as Japanese? Not all groups of the dishes are described by design and colour. The most detailed descriptions, allowing us to imagine the design of dishes, are:

– "with *droidet* (probably from French: *droit* – checked pattern) blue, divided into four parts between them flowers of different colors in the center blue circle, birds on tree, bouquet colourful"
– "painted with different Chinese persons on the outside, golden inside"
– "with curved edges painted in blue, on the outside six Chinese letters in the circle and flowers at the bottom
– "with edges of different colours painted, gilded, in the center riders on horses, another sitting at the porch"
– "with lace on the edges, mostly painted with dark blue and gilded with flowers of different colours in the middle, with big bouquet in the middle with leafs in green and with birds"
– "on the edge different persons painted with colours in the middle one on horse one with banner"
– "of colour blue and red with gold in painted landscapes (jug)"
– "rims with blue check in the middle blue circle inside green bouquet, and three bouquets around with different colours".

Of course those are descriptions that match the vast majority of 18th century export Oriental porcelain. Some of them indicate that it could be *famille verte, famille rose* or Chinese Imari. All is mass-produced Chinese export porcelain tableware. Any of the dishes

including huge bowls of 22 and half inches seize are not mentioned as "display porcelain", all were regarded by the person creating the inventory, who most probably would have to agree with the owner, that they were nothing more than table vessels. We may get impression that the valuation of them must have been quite high. Detailed perusal of the lists reveal very interesting remarks, some made when the inventory was created, some probably later, written in different hands in the margins of the document. Those fascinating comments describe the state of preservation of the plates and dishes, and quite often it is an integral part of the description of the dish following information on shape or usage and design. The damages described are of many different kinds, plates can be: fractured or cracked, chipped off, fallen down, broken. Sometimes information on the remaining parts of destroyed dish is noted – as if they were meant to be repaired in future, or the evidence of once existing, but destroyed dishes must be kept. Although the question of the judgment on the high valuation of described porcelain taken from those description must be raised in the light of other known to me inventories. For example in the inventory of dresses of S.K. Potocki – son in law of Izabella Lubomirska, and founder of the museum in Wilanów palace and owner of great collection of art, names exactly not only the number of his handkerchiefs, between coats, suits, trousers, boots, guns and orders. But also it describes how many, when and in which town of those handkerchiefs were lost.

The main question that arises up from a close reading of Izabella Lubomirska's Wilanów Inventory of 1793 is the question of the relation between display porcelain and utility table vessels. Could some of the dishes described in the "treasury" be used as decorative pieces to adorn the rooms? If not – then what was the difference to those on display – perhaps it was not only the purpose or the shape that divided those two groups. Can vases, tureens or platters be used as decoration in the palace interiors? Which design, which colour type was regarded as ornamental and attractive at the time? Traditionally researchers and specialists in 18th century Oriental export porcelain consider the Japanese wares as those for palaces, citing the rarity, higher value, different aesthetical value of Japanese porcelain in comparison to the mass-produced Chinese export dishes. The Lubomirska Inventory makes one aspect perfectly clear – the Chinese porcelain for everyday table use was available in large quantities. From our document it is impossible to say what differentiated the usage of the Chinese and Japanese wares in the Wilanów Palace of Izabella Lubomirska around 1793. We know that the enlightened art collector Stanisław Kostka Potocki, mentioned earlier and regarded as the first Polish art historian thanks to his book based on J. J. Winckelmann's theories, was attempting to distinguish the typical features of Asian art and differences between Chinese and Japanese porcelain. Potocki travelled with his mother-in-law Izabella in Europe, was her advisor on acquiring art objects for her collection. Although he was fairly knowledgeable it is not likely that

he would have influenced the description of tableware in Wilanów's pantry. It is difficult to explain the discrepancy between this very modest amount of porcelain in the palace interiors when we think of the interiors of an elegant and sophisticated lady of that period, famous for her stylish taste and decorative and beautiful knick-knacks. Might the explanation be that the inventory was composed at the time Izabella was not in Wilanów and during that time the palace rooms were not decorated with small, movable objects? This is as difficult to confirm as to deny.

In Izabella's main residence – Łańcut Castle in southern Poland, the interiors were much larger and more lavishly decorated. Inventories from 1802 and 1805 list some small objects including porcelain in the palace interiors, but still their number is not large. Again, numerous porcelain dishes are itemized in the "treasury" and pantry, about 1500 pieces of Saxon porcelain, Berlin porcelain, Chinese with green flowers and golden decoration and something called "farfura", described as Chinese blue faience.[11]

In the Wilanów and Łańcut Palaces of Izabella Lubomirska there were no porcelain display rooms as were so popular in European residences from middle of the 18th century, such as of Schönbrunn's Round and Oval Cabinets. In Łańcut Palace Isabella arranged a Chinese Room, a small interior connected with a space designed in the so-called "Pompeian" style. The walls of the Chinese Room are decorated with vivid colours and geometrical pseudo-Chinese designs most probably taken from English design books (e.g. William Chambers), and small Oriental-themed prints or pastels. Small consoles designed to display porcelain are mounted around the walls. However, the character of the space was more to infer a Chinese interior based on the knowledge and imagination of the late 18th century, quite different from the style and character of porcelain display rooms with typically European ornamentation. It is worth noting that, possibly due to tradition at the time, decoration with large numbers of different kinds of ceramics could be reserved for purpose-built rooms designed specifically for displaying porcelain and sometimes lacquerware. They could be full of all kinds of vessels when in other palace rooms a small number of decorative ceramic objects were interspersed with many other sorts of items – sculpture, caskets and boxes both Oriental as well as European.

The present collection of Oriental art in the Wilanów Museum has very few objects that can be connected to those described in the 1793 inventory on the basis of their design, and even then this link is very weak. This collection was created later, under the aegis of Izabella's son-in-law Stanisław Kostka Potocki from about 1800, and its character is completely different. It is a scholarly compilation created to present different types of Oriental porcelain, conceived as a museum collection for guests of Wilanów Palace,

11 AGAD, APŁ, 784/2–3, Inwentarz Zamku Łańcuckiego spisany Dies 1 7bris 1805 Anno (Central Archives of Historical Records, APŁ, 784/2–3, Inventory of the Łańcut Castle written Dies 1 7bris 1805 Anno).

not tableware to be used. There is no information on the history of Izabella's Chinese porcelain tableware collection described in the inventory after 1793. Possibly she had it transported to her main residence in Łańcut Castle just before the Polish-Russian War and the Kościuszko Uprising of 1794.

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SILVIA MIKLIN-KNIEFACZ, RICHARD MIKLIN,
SUSANNE KÄFER, FLORIAN SCHWETZ, VÁCLAV PITTHARD,
SABINE STANEK, MARTINA GRIESSER, WALTHER PARSON

First Investigations of the Asian Lacquer Panels in the "Chinese Cabinets", Schönbrunn Palace, Vienna

ABSTRACT

The two "Chinese Cabinets" furnished with East Asian lacquer panels and porcelain were built between 1746 and 1760 in Schönbrunn Palace during the reign of Empress Maria Theresia. Five different types of lacquer panels can be distinguished: Chinese polychrome lacquer panels, Chinese lacquer panels with gold decoration, Chinese coromandel lacquer panels, Japanese maki-e panels and a few European lacquer panels. Five exemplary panels were selected and underwent thorough investigations. In addition to the historical and technological research, optical and SEM microscopy, cross-sections and stainings were undertaken to obtain information about the stratigraphy and the materials. The Asian lacquers could be identified with (Py)-GC/MS; later varnish layers were analysed by GC/MS. To verify pig´s blood in the base layer, forensic DNA fingerprinting was applied. This information will help to develop the concept for the conservation of the cabinets which is planned for 2015 and 2016.

INTRODUCTION

Situated on both sides of the Small Gallery, the Round and the Oval "Chinese Cabinet" were built around 1746 at Schönbrunn Palace, and furnished between 1753 and 1760 by Nikolaus Pacassi.[1] In contrast to the Vieux-Laque-Room – which was built in 1770 – the lacquer panels are mounted within white painted panelling and gilded wooden mouldings. There are different types of lacquer panels, mounted in several rows and axes on the walls: Chinese polychrome panels with flowers, plants, butterflies and birds on black lacquer, Chinese black lacquer panels with gold-sprinkled decoration depicting landscapes and various figures, Chinese *coromandel* lacquer panels (only in the Round Cabinet), Japanese *maki-e* panels in the bottom zone and a few European (or "japanned") panels.

1 Iby, E./Koller, A., Schönbrunn, Wien 2000, 107.

Altogether 58 panels are mounted in the Oval Cabinet and 67 in the Round Cabinet. To date, no records have been found regarding where the panels were purchased. It is obvious that the Chinese panels were originally parts of folding screens.

RESTORATION AND REARRANGEMENT AROUND 1900

The arrangement we see today is not the original one. The oldest visual records date from around 1890[2] and around 1900[3] and show a more homogenous arrangement with only gold lacquer and *coromandel* panels.

The large panels in the centre row are all decorated with gold lacquer; no floral panels are evident. In addition, in the bottom row there seem to have been *coromandel* panels in both cabinets, where the Japanese *maki-e* panels are currently mounted. A European piece is visible in front of the fireplace in the Oval Cabinet. There is no proof that this was the original arrangement, but it is the oldest of which we have any documentation.

There are no records of substantial alterations until the renovation undertaken by Sándor Járay in 1899 and 1900. He reported that he cut 29 large panels apart, glued them onto new poplar wood supports and restored them. This indicates that the screen panels had still their original backs in 1900 and that they had not been split before this renovation.

Looking at the historic photos from around 1890 and 1900 we have to conclude that he reversed the panels and used the backs with the flowers and birds – as Jorinde Ebert realized in her preliminary lacquer catalogue of Schönbrunn.[4] Járay also reported that he delivered 48 "new Japanese panels", and these are obviously the ones placed along the bottom row.[5] Until recently we did not know what had happened to the original front sides of the screen panels. However, lately they have come to light in the storage of the Imperial Furniture Collection in Vienna.[6] To summarize the alterations made by Járay:

2 ÖNB Inv.Nr. 422.569-B (photo by Stillfried und Rathenitz).

3 ÖNB Inv.Nr. WH 2.341-E.

4 Many thanks to Jorinde Ebert, who allowed us to use her unpublished manuscript of the „Katalog-Entwurf Asiatische Lacke des 17. – 20. Jh. in Schloss Schönbrunn", Wien, April 2012.

5 Raschauer, O., Geschichte der Innenausstattung des Lustschlosses Schönbrunn, phil. Diss., Universität Wien 1926, p. 299. „Die Firma Sandor Jaray stellt im Ovalkabinett Nr. 28 ‚14 große Füllungen' – offenbar die 14 großen Mittelfelder – und im Rundkabinett Nr. 30 ‚15 Stk. japanische Füllungen' her, indem sie dieselben auseinanderschneidet, auf Pappelholz aufleimt und dann restauriert. In das Ovalkabinett liefert sie ferner 25 und in das Rundkabinett 23 Stück ‚neue japanische Füllungen'. Die restlichen Füllungen werden nur ausgebessert."

6 During a visit in the Imperial Furniture Collection Vienna (Hofmobiliendepot Wien) in August 2013 we could identify 9 big panels and also most of the *coromandel* lacquer panels without any doubt having been mounted in the "Chinese cabinets" before 1900 by comparing them with the photos from 1890 and 1900 (see Fig. 1).

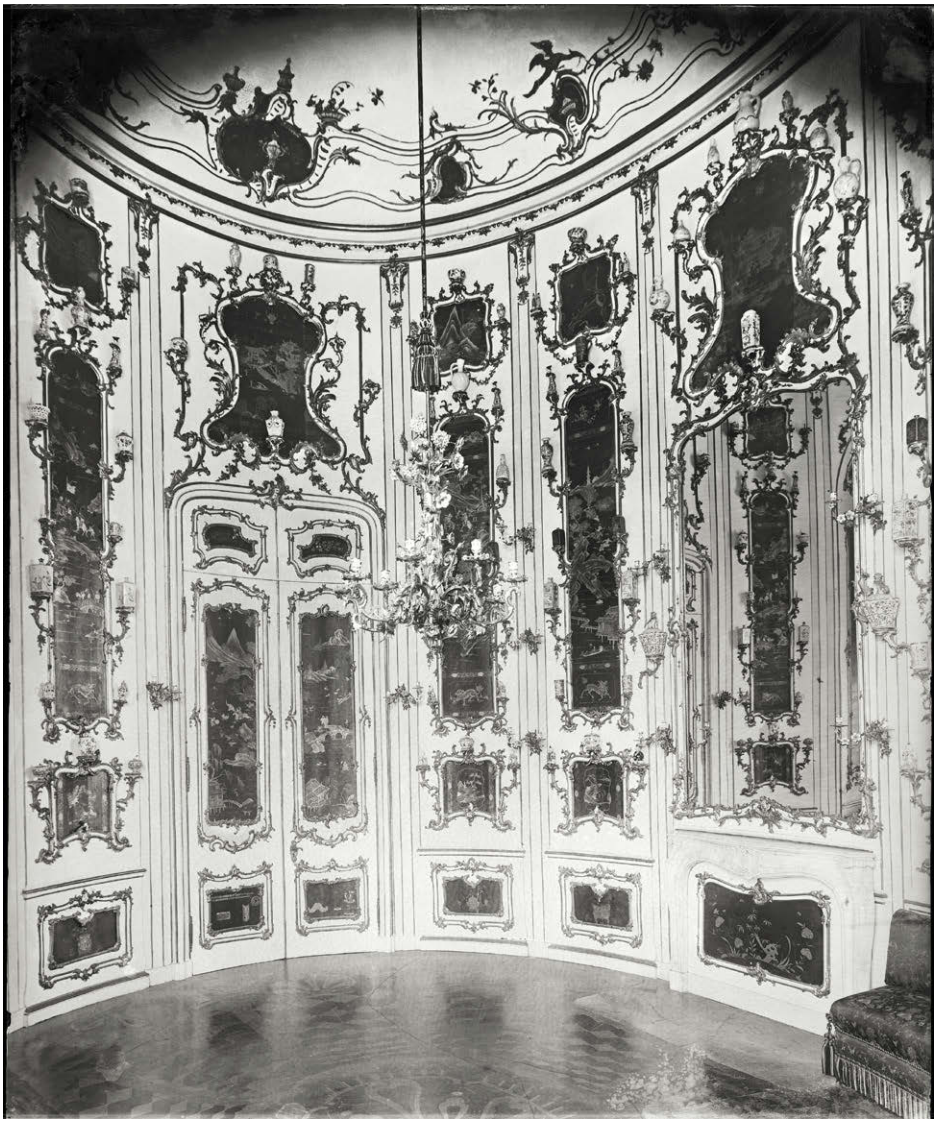

Fig. 1. Oval Chinese Cabinet, around 1900, © ÖNB Inv.Nr. WH 2.341-E/photographer unknown.

he left the upper rows in both cabinets unchanged, in the centre row in both cabinets the gold lacquer panels were replaced by floral panels (except on the doors and in the window recesses), the rows under the centre panels are unchanged, and the *coromandel* panels of the bottom row have been replaced by Japanese *maki-e* panels. Some of the gold lacquerwork segments on the doors were interchanged.

Fig. 2. Oval Chinese Cabinet, 2013, © Schloß Schönbrunn Kultur- und Betriebsges.m.b.H./ photo by Linsinger ZT G.m.b.H., G. Töpfer.

THE DIFFERENT TYPES OF LACQUER PANELS

Type A: Chinese polychrome lacquer panel with flowers and birds, *miaoqi* 描漆 ("lacquerware with painted decorations in coloured lacquer")

Thirteen panels of this type are currently mounted in the central section in both cabinets. According to the motives depicted these are obviously backs of screen panels, the fronts of which have been recently identified in the storage of the Imperial Furniture Collection Vienna. It is difficult to reconstruct the sequence of neighbouring panels; only pairs could be virtually composed. The panels can be dated to the first half of the 18th century and were probably produced in the Canton area, China. Besides flowers and birds they also depict stones, butterflies and phoenixes in coloured lacquer (mainly red, green, reddish brown, pink and blue, and sporadically yellow) on a black lacquer surface. The black lacquer surface is polished, as is the coloured decoration. Fine golden lines frame the coloured depictions painted with red lacquer and sprinkled gold powder. The high quality of the panels is reflected in skilled technical details like shadings from green to red

Fig. 3. Panel 2.10.22, type A, © Institute of Conservation and Schloß Schönbrunn Kultur- und Betriebsges.m.b.H./ photo by Moritz Krehon, S. Miklin-Kniefacz, Sammlung Bundesmobilienverwaltung.

such as seen on the leaves, or nuancing with light-coloured powders (probably mixtures of pigments and metal powders) as used on some flowers, and scribed designs like leaf veins and other patterns.

As an example for type A, panel 2.10.22 was dismantled and examined. Samples were taken to undergo cross-sections, staining, GC/MS and (Py)-GC/MS analyses. The results are presented in detail in the experimental part, but the main findings can be outlined as follows: the lacquer is composed mainly of laccol (from *Toxicodendron succedaneum*, a tree native to Taiwan and Vietnam, but common also in China and other Asian countries), and the ground layers contain pig's blood. The dimensions of the piece are 445 mm x 2525 mm. The panel had been split and the back side was glued to a new wooden board, probably spruce or fir. This board has vertical cuts, which were presumably made by Járay to reduce the warping of the original panel. The remaining original panel is 9 mm thick; the total thickness of the panel is 19 mm. The back side shows two different position numbers: "6.C." painted with ink and "füllung III N. 2" (= panel) inscribed in pencil. The pencil notation predates the cuts, as they go through the inscription.

The whole surface on the front is covered with a whitish, slightly bluish fluorescent varnish.

The microstructure of the lacquer surface shows very little light damage, implying that it was protected from light most of the time.

Type B: Chinese lacquer panel with black and gold, *miaojin* 描金 ("painted with gold")

17 large panels of the black and gold type are located on the doors and the window recesses and 50 smaller ones are scattered in the rooms. These, however, can be subdivided into

panels with gold decoration with minor coloured areas in red, blue, green, brown and grey (14) and others with combined gold, silver and tin powder decoration without colours (3).

The 9 panels of the window recesses can be reconstructed as an originally 12-fold screen with only 3 outer panels missing; other virtual reconstructions are still in progress. The panels can be dated around 1720 and were probably produced in the Canton area. Themes depicted include scenes of palace life, hunting, landscapes with pavilions, children at play, women cavorting and men conversing. The tops and lower edges of each panel are ornamented with bordures and cartouches with flowers or landscapes. The black lacquer surface is polished; the designs are painted with red or transparent lacquer and the mostly very fine gold powder was sprinkled or brushed into the still-wet lacquer. In large parts the gold decoration is flat, but tree trunks, rock formations, garments and architectural details are partially raised in a faint relief. Different gold and silver alloys were used: a rather pure gold alloy, a light-coloured alloy, probably from gold and silver and a rather whitish silver alloy. Red details (e. g. mouths, hair ribbons) as well as those in black (e. g. hair, eyes, shoes and outlines) are applied sparingly. Stencils were used to create the design of brick walls, rock walls and formations, fences and other flat decorations.

As an example for type B, panel 2.90.21 was dismantled and studied; as above, samples for cross-sections, staining, GC/MS and (Py)-GC/MS analyses were taken. The main findings correspond to those of the type A-panels: the lacquer is composed mainly of laccol (*Toxicodendron succedaneum*) and the ground layers contain pig´s blood. The panel is larger than the type A-panel, namely 480 mm x 2877 mm, it has also been split and has had a new wooden board, probably spruce or fir, glued to the back side. The thickness of the remaining part of the original segment is 7.5 mm; the total thickness of both layers is 18 mm. As part of a former screen the panel still has the original legs at the bottom. The verso has been inscribed with a position number "9.B.", painted in ink; another notation in red pencil reads "Rundkab." (= Round Cabinet); furthermore, an undated newspaper fragment advertising a kind of power nutrition is still attached. The whole surface is covered with a whitish fluorescent varnish. In contrast to that of the "flower and birds" panel, the surface is badly light-damaged and matte under the varnish.

Type C: Chinese *coromandel* lacquer panel, *kuancai* 款彩 ("carved and with diverse colours")

Today panels of this kind of lacquer are mounted only in the Round Cabinet, two segments on the fire screens under the mirrors, six above "flower and bird" panels; altogether only 8 panels remain of the original decoration.

These panels are the oldest in the "Chinese Cabinets" and can be dated to the Kangxi period (1662–1722). They were also originally parts of screens and depict palace scenes

Fig. 4. Panel 2.90.21, type B, © Institute of Conservation and Schloß Schönbrunn Kultur- und Betriebsges.m.b.H./photo by Moritz Krehon, S. Miklin-Kniefacz, Sammlung Bundesmobilienverwaltung.

with ornate borders showing the so-called "100 antiquities." The motives are carved into the polished lacquer surface and the carved out areas are painted with oil based paints or gilded respectively. The coloured areas often show in addition very fine fabric patterns, textures, "ink painting" and other painted designs.

As example of a *coromandel* lacquer, panel 2.9.20 from the fire screen was dismantled and investigated. Samples were taken to undergo cross-sections, staining, GC/MS and (Py)-GC/MS analyses; pigments (white, red, green, gold) were identified by SEM (see chapter 4). The lacquer detected is composed of laccol *(Toxicodendron succedaneum)* and urushiol (*Toxicodendron vernicifluum*), with the addition of different oils; the ground layers are protein bound and contain pig´s blood. The panel consists of parts of 3 panels, split and glued together on a new thin support from maple veneer. The dimensions are 775 mm x 338 mm, the remains of the original panel have a thickness of 5.5 – 6.5 mm, the maple veneer is 1 mm thick. On this panel three of the "100 antiquities" are depicted: a bronze vessel, a basket with flowers and some kind of instrument or paper roll. On the verso the position number "5.A." is painted in brown ink and an inscription with pencil "Spigel III N2" (= mirror) can be seen. Furthermore, a piece of newspaper with the date March (?) 1900 was left by Sándor Járay when he glued the veneer on. The text on the newspaper advertises the young wine of a region in Lower Austria. The whole surface is covered with a bluish fluorescent varnish which was applied especially thickly in the carved parts. The different colours have been strongly altered by the yellowish varnish; the green and blue areas can hardly be distinguished, and the entire surface has been severely damaged by light.

Fig. 5. Panel 2.9.20, type C, © Institute of Conservation and Schloß Schönbrunn Kultur- und Betriebsges.m.b.H./photo by Moritz Krehon, S. Miklin-Kniefacz, Sammlung Bundesmobilienverwaltung.

Type D: Japanese black lacquer panel with gold, *maki-e* 蒔絵 („sprinkled picture“)
These 36 panels, some of them composed of two or three segments, are mounted in the bottom row in both cabinets and are the only ones which were not split after arriving in Vienna. They have still their original lacquer finish on the backs and were only cut at the edges to fit into the openings of the cabinet´s panelling.

These are the most recent lacquer works in the Cabinets. They were produced in Japan at the end of the 19th century, probably after the 1873 World Exhibition in Vienna, where Járay might have made contacts with Japanese producers. The *maki-e* pieces were manufactured in series as panels, originally lacquered on all sides and show only 5 different motives of nature depictions with flowers and birds, with minimal variations. Different *maki-e* techniques have been employed on the panels: *togidashi* (“polished picture”, e.g. the moon in the background), *hira-maki-e* (“flat sprinkled picture”) and *taka-maki-e* (“raised sprinkled picture”); different metal alloys with different degrees of fineness have been used for the sprinkling: gold (*kin*), a light coloured gold-silver alloy (*aokin*), silver *(gin)* and also bronze powders with pigments. The *hira-maki-e* and *taka-maki-e* designs are sprinkled on red pigmented lacquer, *togidashi* on transparent lacquer. Small details like bird´s eyes and feather patterns are painted with black lacquer on the gold, some details also in bright red.

Fig. 6. Panel 2.10.20, type D, © Institute of Conservation and Schloß Schönbrunn Kultur- und Betriebsges.m.b.H./photo by Moritz Krehon, S. Miklin-Kniefacz, Sammlung Bundesmobilienverwaltung.

As example for a *maki-e* panel, 2.10.20 was dismantled and examined. Samples were taken to undergo cross-sections, staining, GC/MS and (Py)-GC/MS analyses; pigments (red, black, ground layers) were identified by SEM (see the experimental part). The lacquer contains urushiol (*Toxicodendron vernicifluum*), with the addition of a drying oil; the ground layers are protein bound (yet with no pig's blood!). The panel measures 430 mm x 280 mm, the total thickness of all layers is 10.6 mm. On the front side the *maki-e* decoration, depicting a bird with a rock formation and flowers, was applied on a polished black lacquer surface (*roiro-nuri* or *roiro-migaki*), however the verso is not polished (*nuritate*). On the back side the position number "6.A." is painted in black ink on the black lacquer surface. Compared to those on the Chinese lacquer panels, the lacquer layers are rather thin; the ground layers are soft and finely granulated. Under the ground layers a thin paper layer is noticeable. The whole surface on the front side is covered with a bluish fluorescent varnish, but there is no varnish on the back. The lacquer shows little light damage under the microscope.

In addition, 8 fragments of Japanese panels are mounted above the doors (the motives do not belong to the series of the bottom panels).

Type E: European (Viennese?) panel, "japanned"

At first sight only one European panel could be discerned, namely in front of the fireplace of the Oval Cabinet. During the examinations over the previous months three further panels on the doors could be identified as European, but they have a different appearance from that on the fire screen.

The panels on the doors resemble those from Asia, but the distinctive surface appearance as well as a different flow and expression reveals their European origin. They have a hard, grey foundation layer, but to date no analyses have been made. A fourth panel on the doors is painted with European materials, but the background is a Chinese lacquer panel. These four panels date probably from the construction time of the room and are older than the fire screen panel.

Panel 1.5.20, placed in front of the fire screen of the Oval Cabinet, was removed and investigated. Samples were taken to have cross-sections, staining and GC/MS analyses (see the experimental part). The analyses are not yet completed, but it is obvious that the European lacquer and the foundation have a completely different composition from those made in Asia. The lacquer contains linseed oil, pine pitch and dammar resin and can thus be dated to the early 19th century.

Indeed, the panel can be seen on the photograph which in all likelihood had been taken around 1900, prior to Jaray's restoration campaign. In a contemporary photograph of 1969, additions include rocks, grass and more flowers, painted with brass powder are visible. These obviously stem from a 1962 restoration, when mainly repairs to the gilded frames were recorded.[7] There is no obvious reason for the additions, except those on the bottom which hide the cracks. The black lacquered part was painted directly on the firescreen inside a white painted border, which in turn had been encircled with a slim gilt line, which is hidden under the gilded moulding of the mounting.

EXPERIMENTAL PART

ANALYSES OF STRATIGRAPHY, PIGMENTS AND BINDING MEDIA

Selected samples from five panels (summarised in Table 1) were initially examined by optical microscopy (OM) with a stereo-microscope Stemi 2000-C, Zeiss, Germany. Subsequently, small particles embedded in epoxy resin and polished after curing provided a set of cross-section samples. These sections were used for microscopic measurements and

7 Sketches and inscriptions of the gilder Wolfgang Hoffinger were found behind some Chinese panels in the Oval Cabinet. Thanks to Mr. Hoffinger for the information about the restoration of 1962!

histochemical staining[8] to identify and map the presence of binders in the multi-layered structure. The microscopic examinations were made under incident light either using polarised light or in the dark field mode, but also using UV-fluorescence ("blue" filter set 09 – excitation wavelength 450–490 nm, "UV" filter set 01 – excitation wavelength 365 nm). Wherever necessary the microscopic investigations were complemented by scanning electron microscopy (SEM) studies to identify the inorganic components of the ground layers and decorative elements. A FEI Quanta 200 F electron microscope equipped with an EDAX X-Ray detection system was applied.

The second set of samples was used directly for gas chromatography/mass spectrometry (GC/MS) to detect lipids and resins as well as proteinaceous binding media. Pyrolysis-GC/MS (THM-Py-GC/MS) was also implemented to identify Asian lacquers. The GC/MS analytical procedure for the analysis of lipids is based on the transesterification of fatty acids and the determination of their relative ratios to identify particular lipids, the analytical procedure for the analysis of resinous binding media is based on the esterification of resinous acids followed by the identification of particular resins according to their resinous acid methyl esters. For the analysis of proteinaceous materials the procedure is based on an acidic hydrolysis of proteins to liberate amino acids, followed by the derivatisation and quantitative determination of amino acids as their silyl derivatives.[9]

Tests using thermal assisted hydrolysis and methylation pyrolysis (THM-Py-GC/MS) with TMAH analysis were performed applying a Currie-point pyromat. Experimental details on the analytical instruments used and the most important measurement parameters are given in Table 2. The analyses of western lacquers based on resinous or oleo-resinous varnishes were performed by means of gas chromatography-mass spectrometry (GC/MS) while the pyrolysis (Py-GC/MS) enabled the determination of aged Asian lacquers according to their various chemical compositions.[10]

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8 Schramm, H. P./Hering, B., Historische Malmaterialien und ihre Identifizierung, Stuttgart 1995. Jütte, W., Mikrochemischer Nachweis natürlicher Harze mit Alkannafarbstoffen in Querschliffen von Malschichtproben, in: Vendl, A./Pichler, B./Weber, J./Erlach, R./Banik, G. (eds.), Wiener Berichte über Naturwissenschaft in der Kunst 6/7/8, Wien 1989/90/91.

9 Pitthard, V./Griesser, M./Stanek, S./Bayerová, T., Study of Complex Organic Binding Media Systems on Artworks Applying GC-MS Analysis: Selected Examples from the Kunsthistorisches Museum, Vienna, in: Macromolecular Symposia, vol. 238(1), 2006, p. 37–45.

10 Frade, J. C./Ribeiro, M. I./Graça, J./Rodrigues, J., Applying Pyrolysis-Gas Chromatography/Mass Spectrometry to the Identification of Oriental Lacquers: Study of Two Lacquered Shields, in: Anal Bioanal Chem, vol. 395, 2009, p. 2167–2174. Le Hô, A.-S./Regert, M./Marescot, O./Duhamel, C./Langlois, J./Miyakoshi, T./Genty, C./Sablier, M., Molecular Criteria for Discriminating Museum Asian Lacquerware from Different Vegetal Origins by Pyrolysis Gas Chromatography/Mass Spectrometry, in: Analytica Chimica Acta, vol. 710, 2012, p. 9–16. Lu, R/Kamiya, Y./Miyakoshi, T., Applied Analysis of Lacquer Films Based on Pyrolysis-Gas Chromatography/Mass Spectrometry, in: Talanta, vol. 70, 2006, p 370–

Panel type	Panel description	Sample No.	Sample location	Analytical methods
A	Panel 2.10.22 decorated with flowers and birds (445 x 2525 mm)	A1	Right edge of the panel/ varnish and lacquer layer	GC/MS
		A2	Right edge of the panel/ multilayered sample	Cross-section, SEM, THM-Py-GC/MS
B	Panel 2.90.21 gold lacquer type (480 x 2877 mm)	B1	Left edge of the panel/ multilayered sample	Cross-section
		B2	Left edge of the panel/ varnish	GC/MS
		B3	Right edge of the panel/ multilayered sample	Cross-section
C	Panel 2.9.20 *coromandel* lacquer (775 x 338 mm)	C1	Right upper part of the panel/ multilayered sample	Cross-section, SEM
		C2	Right edge of the panel/ pigment of green flower	SEM
		C3	Right edge of the panel/ light pigment of green flower	SEM
		C4	Right edge of the panel/ varnish	GC/MS
		C5	Bottom edge of the panel/ varnish	GC/MS
		C6	Bottom edge of the panel/ lacquer	THM-Py-GC/MS
D	Panel 2.10.20 Japanese black lacquer *maki-e* (430 x 280 mm)	D1D2	Upper edge of the panel/ upper coating Upper edge of the panel/multilayered sample with wooden support	GC/MS Cross-section, SEM
		D3	Upper edge of the panel/ Lacquer with gold	Cross-section, SEM

376. Schilling, M. R., Anacard marker compounds, Recent Advances In Characterizing Asian Lacquers (RAdiCAL) workshop, 22–26 October 2012, Getty Conservation Institute, Los Angeles 2012.

Panel type	Panel description	Sample No.	Sample location	Analytical methods
		D4	Left bottom edge of the panel/ multilayered sample	GC/MS, THM-Py-GC/MS
		E2	Central part of the panel, golden ball/ gilding layer	Cross-section, SEM, GC/MS
		E3	Central part of the panel, by a crack/ gilding layer	Cross-section, GC/MS
		E4	Left upper white mounting/ multilayered sample	Cross-section, SEM, GC/MS

Table 1 List of objects and sampling locations on the lacquer panels.

Method	Instrumentations	Parameters/conditions
Optical microscopy (OM)	Zeiss Axioplan 2 microscope fitted with a Sony Power HAD video system.	Incident light, 100 W halogen lamp and 100 W high pressure mercury lamp for UV light (UV filter 365 nm) and blue light (filter 450–490 nm) use
Scanning electron microscopy with energy dispersive X-ray detection (SEM-EDX)	FEI Quanta 200 F with EDAX X-Ray detection system	High vacuum, acceleration voltage 20 kV
Gas chroma-tography-mass spectrometry (GC-MS)	6890N gas chromatograph connected to a quadrupole mass spectrometer, model 5973N (both Agilent Technologies, USA)	Transesterification with a 0.2 M methanolic solution of Meth-Prep II (30 µL) and a solvent mixture (methanol:toluene, 1:2; 70 µL), DB–5 MS [poly (5% phenyl–95% methylsiloxane), J&W, USA] capillary column (0.25 mm x 0.25 µm x 30 m), the temperature programme from 50 °C (1 min) to320 °C (12 min) at 10 °C.min^{-1}

Method	Instrumentations	Parameters/conditions
		Hydrolysis with 6 M hydrochloric acid (HCl, 100 µL) at 105 °C for 24 hours, followed by silylation with a pyridine – pyridine hydrochloride mixture (15 µL) and a silylation reagent (MTBSTFA, 30 µL) at 60 °C for 1 hour, temperature programme (80 °C (1 min) to 280 °C (1 min) at 6 °C.min^{-1})
Thermal assisted hydrolysis and methylation pyrolysis (THM-Py-GC/MS)	Curie-point pyromat, (GSG, Germany) attached to a gas chromatograph and mass spectrometer (Agilent, USA)	1 µL of 25% aqueous TMAH. Pyrolysis was performed at 764 °C for 20 s. DB–5 MS [poly (5% phenyl–95%methylsiloxane), J&W, USA] capillary column (0.25 mm x 0.25 µm x 30 m), temperature programme from 50 °C (1 min) to 320 °C (12 min) at 10 °C.min^{-1}

Table 2 Experimental parameters of analyses

Panel A

Microscopic examination of the cross-section prepared from sample A2 showed the presence of two brown ground layers separated by a thin intermediate layer with textile fibres. These foundation layers are separated from the upper ones by another very thin organic layer. The observation of the cross-section under UV-light helped to distinguish the overlying lacquer layers, which appeared as a single dark structure in visible light. The following thin application of metal is part of the decoration on top of the panel. The multi-layered structure is finalised by a thin, transparent, UV fluorescent coating. Specific staining tests were applied to identify and map organic paint materials within the cross-section simultaneously. The complementary use of amido black AB2, alkanet and rhodamine B allows to prove and localise the use of special organic binders as proteins, resins, and oils. Both resin and oil could be also be detected in the ground as in the coating layers, while protein could only be observed in the ground layer.[11]

The uppermost coating soluble in ethanol indicates later restoration and was subsequently studied by GC/MS technique. The coating is based on oxidised shellac and oil-resinous varnish composed of linseed oil and Manila copal. The drying oil was specified according to the P/S ratio (palmitic acid/stearic acid ratio), which is the main pa-

11 Odegaard, N./Carroll, S./Zimmt, W. S., Material characterization tests for objects of art and archaeology, London 2005.

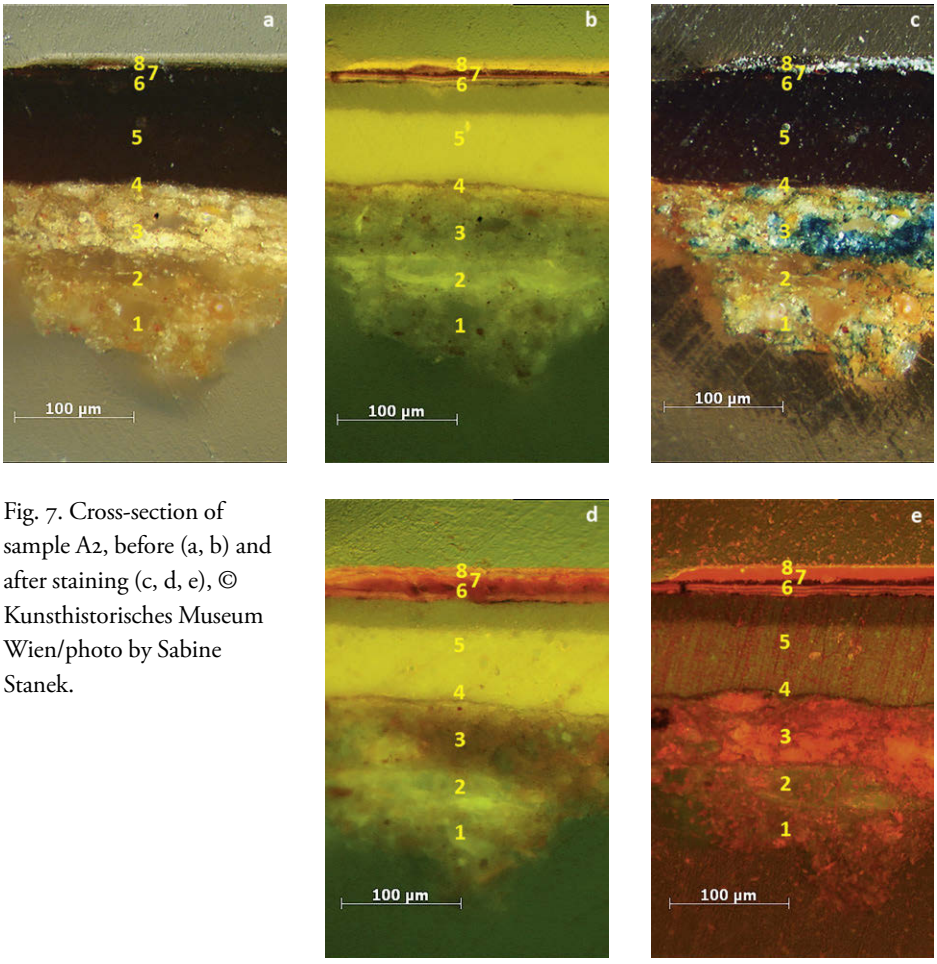

Fig. 7. Cross-section of sample A2, before (a, b) and after staining (c, d, e), © Kunsthistorisches Museum Wien/photo by Sabine Stanek.

rameter in the oil identification. Heat-bodied linseed oil (P/S=1.6) is probably the main drying oil used. Manila copal (*Agathis* species), first used in Europe in the 17th century, was detected by finding agathic acid present, while shellac was identified by the series of shellac acids and the presence of their oxidation products indicates that the shellac is in a rather oxidised state.[12] The lacquer layers underneath were undergoing the pyrolysis identification. As shown in figure 8, according to a series of degradation pyrolitic products, it seems that the lacquer layer is composed of aged laccol *(Toxicodendron succedaneum).* In addition, drying oil and cedrol oil were also observed in the lacquer using pyrolysis.

12 Sutherland, K., Bleached Shellac Picture Varnishes: Characterization and Case Studies, in: Journal of the Institute of Conservation, vol. 33(2), 2010, p. 129–145.

Panel B

Cross-section and staining analyses of panel B are still in progress, nevertheless the GC/MS and pyrolysis measurements performed have shown a close similarity concerning the detected binding media to panel A. The upper coating is based on oxidised shellac and oil-resinous varnish composed of drying oils and Manila copal. Heat-bodied linseed oil with a possible admixture of walnut oil is indicated by the P/S ratio (P/S=2.2). Moreover, pyrolysis of the lacquer layer revealed the presence of aged laccol besides cedar oil and drying oil.

Panel C

The *coromandel* panel has a very coarse first ground layer and a finer second ground layer. The lacquer coat has been carved away on the area sampled (C1, spot with gold decoration) and therefore the first layer on the ground is a white oil paint with lead white. This is followed by multiple red layers: the first red coat is pigmented with lead orange, then cinnabar and then an organic red layer (maybe the size for the gold). For other areas the green colour could be identified as a copper-based pigment and the golden decoration as gold applying SEM-EDX. The staining of cross-section C1 revealed that the ground layers contain protein and oil, as do the white and the first two red layers, while the third red layer contains only oil. GC/MS analysis detected oxidised shellac, heat-bodied linseed oil (P/S=1.8), Manila copal and traces of pine resin *(Pinus species)* in the varnish layers. The Anacard lacquer underneath identified by pyrolysis is composed of both aged laccol *(Toxicodendron succedaneum)* and urushiol *(Toxicodendron vernicifluum)* besides drying oil and cedrol oil.

Panel D

The structure of the Japanese panel looks quite different. Between the protein-bound ground and the lacquer layers there a very thin black line is visible, which is very characteristic for many Japanese lacquer objects, but to date has not been identified further as regards its composition. It is followed by two lacquer layers (*shitanuri* and *uwanuri*) and several non-Japanese coatings with resin and oil. In the areas of red lacquer, which was used as the underpainting of the gold sprinkling, not only iron oxide (as usual), but also arsenic sulphide (orpiment) was identified. GC/MS analysis of varnishes confirmed heat-bodied linseed oil (P/S=1.7) besides traces of Manila copal, pine resin, and dammar resin. In addition, oxidised shellac was also detected. The composition of the lacquer layers determined by pyrolysis is based on aged urushiol *(Toxicodendron vernicifluum)* and drying oil, probably tung oil, as a marker of the tung oil oxidation was observed. Furthermore, no cedrol oil but soot or tar components were detected.

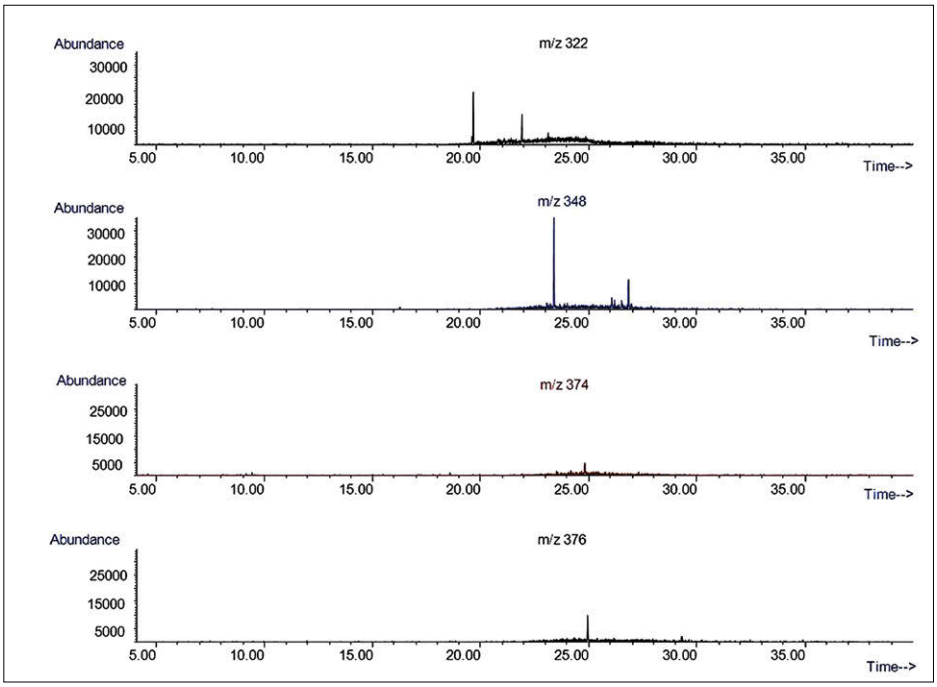

Fig. 8. Pyrograms of sample A2 obtained with THM-Py-GC/MS analysis.
Note: pyrolitic products of laccol: *m/z* 322: Alrenic acid methyl ester (oxidation product of laccol, *Toxicodendron succedaneum*) (a), *m/z* 348: C15–catechol methylated (b), *m/z* 374: C17–1–catechol methylated (c), *m/z* 376: C17–catechol methylated (d), © Kunsthistorisches Museum Wien/ photo by Václav Pitthard.

Panel E

In comparison to the structure observed on the Asian panels A – D, that of the European lacquer was completely different. In the sample from a spot with metal powder decoration, a white layer with chalk is followed by brass powder and at least two other coatings. Resins and oil in the upper layers were found by subsequent staining. The coating taken in the middle of the panel and analysed by GC/MS shows a composition based on linseed oil (P/S=1.7) and traces of pine pitch or pine resins and dammar. Besides the diterpenes commonly observed in pine resin, the presence of retene indicates a kind of thermal treatment or alteration suggesting the use of pine pitch.[13]

13 Mills, J. S./White, R., The organic chemistry of museum objects, Oxford 1994.

DNA ANALYSES OF CHINESE GROUND LAYERS

In 1994, the Schloß Schönbrunn Kultur- und Betriebsges.m.b.H. invited two Chinese lacquer artists, Wu Guofen and Wu Xi, who demonstrated the traditional use of pig's blood as a binding medium for the foundation layers of lacquerware. The pig´s blood was used to seal the wooden support by whisking the blood and adding chalk or lime and also as a mixture with tile powder to build up foundation layers. After a coarse ground layer paper was adhered with pig's blood (also whisked and with addition of lime) and another ground layer with fine tile powder and blood was applied. Before coating the foundation with lacquer it was sealed two times with tung oil.

To confirm the use of pig´s blood in the grounding of the Chinese panels, samples were examined at the Austrian Central DNA Laboratory in Innsbruck by Walther Parson.

The samples were DNA-extracted using the EZ1 Advanced (Qiagen, Hilden, Germany) following the manufacturers' guidelines. The cytochrome *b gen* was sequenced as described by Parson[14] and the resulting consensus sequences were searched in *GenBank*.

In three samples of ground layers (Wu Xi's own sample board as reference, a specimen from the Vieux-Laque-Room and one from panel A), a consensus sequence was found that matched *GenBank* entries of *sus scrofa* (wild pig). Panels B and C showed human *cyt b* sequences, most likely explained by human contamination that masked the presence of other species (these PCR primers also match the human *cytochrome b* sequence).

In a second set of experiments new primers specifically designed for the *Sus* genus generated sequences corresponding to *sus scrofa* also in panel B (gold lacquer panel) and C (*coromandel* lacquer panel). Still, some contribution of human *cyt b* gene sequence was found.

In a third set of experiments alternative *cytochrom b gen* primers were employed (F15416-RMMd16) that confirmed the results of the second analysis.

In conclusion, these analyses suggest that all samples contain pig´s tissue, but the samples were too small to allow a test for the presence of blood.

THOUGHTS ON THE CONSERVATION CONCEPT

The conservation of the "Chinese Cabinets" is planned for 2015 and 2016. Currently, assembling condition reports and mapping of the damage for all panels of both cabinets

14 Parson, W./Pegoraro, K./Niederstätter, H./Föger, M./Steinlechner, M., Species identification by means of the cytochrome b gene, in: Int J Legal Med, vol. 114, 2000, p. 23–28.

is well underway, as is the examination of the panels which were discovered in the storage of the Imperial Furniture Collection Vienna.

Although the investigations are not completed the conservation concept is maturing. It will have to incorporate the results of research regarding the arrangement of the porcelains by Birgit Müllauer, the examinations concerning the white panelling by Stefan Kainz and Isabella Kaml and also Karl Kratochwill's work on the gilded mouldings. Initial findings suggest that the white panelling was partially pink, green and light blue at some time.

The decision about the conservation concept of the rooms will depend on the time period which is selected for conservation: is the time when the lacquer panels of the central zone were mounted reversed, corresponding to the multicoloured phase when it is possible that the walls were also coloured, and how were the porcelains arranged at the same time? Is it possible to find a convincing and practicable version where all the findings fit together?

The decision to focus on a particular timeframe and consequently lacquer layer has a critical influence on the surface treatment of the panels: as we know, due to the recently discovered lacquer panels, they were not varnished before 1900. However, if we decide on a later time period, varnish is a part of the project. This will be a crucial consideration when discussing whether or not to maintain the overpainting and later varnishes.

In any event, the first steps will be to consolidate some endangered areas with flaking gold lacquer before dismantling the panels, followed by consolidation of the remaining detached lacquer. After cleaning, decisions concerning removing, reducing or regenerating the varnishes and the overpaintings have to be made, flowing probably into a compromise between conserving and exposure.

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PETER KOPP, SARA PICCHI

The Conservation of the Japanned Lacquer Panels of the Vieux-Laque-Room of Schönbrunn Palace[1]

ABSTRACT

The Vieux-Laque-Room at Schönbrunn Palace is among the most significant decorative remodeling schemes undertaken during the reign of Maria Theresia. It was presumably designed by Isidor Canevale, a French architect active in Vienna at the time, as a memorial room for Maria Theresia's late husband, Emperor Franz I. Stephan von Lothringen. It is one of the most impressive examples of the fashion for all things Chinese prevalent in Europe during the 18th century, which led to the creation of lacquer cabinets in many palaces. The decoration for the room was mostly obtained from Chinese folding screens which were fitted in framing paneling with maple veneer decorated with gilded carving. The screen panels were arranged to suit the general design concept of the room with little consideration being given to congruity of motif, being arbitrarily cut up and used like wallpaper. As the imported lacquer panels did not suffice to cover the room entirely, areas of wall were decorated in European lacquer work, creating a harmonious whole that could not be distinguished by the spectator despite the differences in the technique and materials employed. Within the framework of the conservation work carried out between 2002 and 2005 the European panels were comprehensively examined and the results were of paramount importance in selecting the treatment methods employed.

PROVENANCE AND DESCRIPTION OF THE LACQUER PANELS

After the relatively early death of Emperor Franz I Stephan von Lothringen at the age of fifty seven in 1765, his widow, Maria Theresia, had his *retirade* (or retreat) converted into a memorial room. It was probably Isidor Canevale (1730–1786), a French architect active in Vienna at the time, who was entrusted with the planning. With his designs for the

1 Revised extract of the German version: Miklin-Kniefacz, S./Miklin, R./Kopp, P./Picchi, S., Zur Restaurierung der Chinesischen und Wiener Lacktafeln des Vieux-Laque-Zimmers von Schloss Schönbrunn, in: Restauratorenblätter, vol. 28, Wien 2010, p. 147–163.

interior of Count Wenzel Johann Josef von Paar's Palace on the Wollzeile in Vienna, Canevale had established an excellent reputation for himself, which was also known to the Empress. Although he reemployed the Rococo decoration of the Paar Palace in the ornamental design for the Vieux-Laque Room, Canevale created a unique space in the contemporary style that was by no means inferior to the lacquer cabinets of other princely or regal dynasties[2] by incorporating what were then termed 'Indian lacquer panels'. The Vieux-Laque Room was completed in 1770.[3] Panels of Chinese screens were used for the decoration of the room and were fitted into carved gilt framing on a maple veneer paneling. The screen panels were arranged to suit the general design concept of the room with little consideration given to congruity of motif, having been arbitrarily cut up and used like wallpaper. Wall areas not covered by the screen panels were completed using local Viennese lacquer work. Among a total of 138 large and medium-sized lacquer panels along with 84 small ones on the ceiling and in the window niches, 25 panels and parts of some larger fields were covered with lacquer work as produced in Europe after Oriental models. The observations presented below focus on "Viennese lacquer work".

THE VIENNESE LACQUER PANELS

The Viennese works are to be seen as supplements, or rather augmentations of the Chinese panels and are completely integrated within the narrative representations of the Chinese works, as can be seen on the north wall.

The Chinese themes were adopted and combined as cliché-like typologies on the Viennese panels. Nobles and simple peasants going about their daily pursuits and work are embedded in an interpretation of an Oriental environment composed of fragments of landscape suggested by stylized trees, moving water, mountains and architectural elements such as pagodas, huts and bridges.

The panels of the doors and overdoors of the east and west walls and the console tables are segments of the Chinese panels on the north wall, but appear here in a looser form and with freer drawing as there is no longer an immediate need to conform to the prescribed corset of the Chinese panels. A variety of butterflies and birds hover among flowers and fruit (peonies and peaches). Narrative representations are interwoven on the overdoors and console tables with pastiche representations of landscape: the entry of the commanders, horsemen and soldiers; a courtly *tête-à-tête* between an aristocratic couple

2 Witt-Dörring, C., Maria Theresia und ihre Beziehung zur Möbelkunst am Wiener Hof, in: Maria Theresia und ihre Zeit, Salzburg 1979.

3 For the history and decoration of the Vieux-laque-Room in general see Iby, E./Koller, A., Schönbrunn, Wien 2000, p. 132.

Fig. 1. Detail of the overdoor, © photo by P. Kopp.

with a parasol. The lady carries an European fan in her hands and her manner of holding it does not seem random: she points the closed fan towards herself, which in the 18th-century's language of the fan unmistakably communicates "I shall forever be with you"[4]. It is possible that this is an allusion to Maria Theresia's feelings towards Franz Stefan, which would make this representation particularly significant in the Vieux-Laque-Room as it was designed as a memorial for her deceased husband.

METHOD OF PRODUCTION

It is interesting that the depictions were framed without any consideration for the marginal parts of the image. The pictorial compositions were obviously not intended for any one particular support but were produced in advance in large numbers and then cut to suit. This was possible as the lacquer work at Schönbrunn was adhered to cardboard which could then be glued to a wooden support. This procedure is especially apparent in a comparison of one of the console tables and an overdoor on the east wall: the depiction on the console table – a commander accompanied by soldiers – can be seen to be a part of a larger image above the door.

Although small variations in details and single figures have been introduced merely to avoid repetition, the composition is virtually identical.

4 Potrwski, V., Die elegante Dame in der satirischen Literatur des 18. Jahrhunderts, Moscow 1903, in: Tscherwiakow, A.F., Fächer aus dem 18. bis zum frühen 20. Jahrhundert, Parkstone 1998.

Fig. 2. Table North wall, © photo by P. Kopp.

Fig. 3. Overdoor with overlay of table form, © photo by P. Kopp.

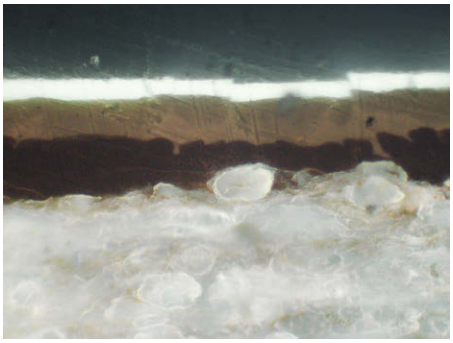

Fig. 4. Cross-section UV, 60x, © photo by M. Schreiner/Jembrih-Simbürger.

ANALYSES OF THE MATERIALS

Before conservation commenced, comprehensive examinations were carried out to provide an exact picture of the materials employed and their state of preservation. The cross-section samples and the inorganic analyses were done by Dubravka Jembrih-Simbürger and Manfred Schreiner (Academy of Fine Arts, Vienna)[5], the analyses of the binder material was done using GC-MS by Manfred Koller and Ursula Baumer (Dörner Institute, Munich)[6].

STRUCTURE OF THE LACQUER

The original layers of the Viennese lacquer can be summed up as follows: several layers of black lacquer and one layer of clear lacquer were applied onto a paper support; all layers were slightly different in consistency. The lacquer was a fatty oil resinous blend, the basic component of which was amber with further added resins. Presumably molten amber was mixed with linseed oil under heat. In order to increase its stability and shine, sandarac, amber colophony and common colophony were dissolved in alcohol and added to the amber lacquer. Turpentine oil was added to this viscous mass in a water bath until the lacquer became thin enough to be applied by brush. Camphor was also added as a plasticiser.[7] The black colour was achieved through the addition of asphalt (or tar) with their sulphuric components.[8] This lacquer was applied to cardboard in two main layers which fluoresce black and brown.

5 Jembrih-Simbürger, D., Schreiner, M., Analysis Report No /18 2003, Wien 2003.
6 Koller, M., Baumer, U., Analysis Report 20. 4. 2004, Wien 2004.
7 Koller, M., Baumer, U., Analysis Report 20. 4. 2004, Wien 2004, p. 4–5.
8 Jembrih-Simbürger, D., Schreiner, M., Analysis Report No /18 2003, Wien 2003, Appendix II, p. 10.

Each of these two main layers is made up of several individual layers. Dragon's blood was added to tone the upper main layer.[9] This lacquer structure was found on the panels of the north wall, the overdoors and the doors, and indicates that these panels were produced at the same time and that they are original. On top of these pigmented layers of lacquer there are coatings of transparent lacquer which vary according to the panels' positions: the lacquer used for the final coating of overdoors and doors was predominantly derived from amber and corresponds to the original build-up of the pigmented layers. The panels of the north wall were given a coating which consists primarily of industrial oils in combination with colophony and shellac, which is also to be found in the reworked layers of the Chinese lacquer and is therefore to be regarded as a recent treatment.

RELIEF PASTE AND GLITTER PAINTING

The paste to create the raised areas was applied directly to the uppermost black lacquer layer. It consists of chalk, white lead, zinc white and minium.[10] The glitter effect was created with various powdered metals. In contrast with the Chinese work, gold was used sparingly and silver could not be found. The variously coloured metallic powders were mainly of copper alloys (Cu, Zn) and metallic tin and copper. These were either sprinkled directly into the amber lacquer or on red underpainting, which consisted of red ochre, minium and occasionally vermilion.[11]

STATE OF PRESERVATION

The state of preservation of the Viennese lacquer panels reflects the problems associated with the specific oxidation and ageing of the organic materials utilised. On the north wall extensive damage can be ascribed to later reworking. The Viennese lacquer work sections were coated with a thick layer of industrial varnish which spread a brown film over the original craquelure of the black lacquer layer and glitter painting. On individual panels, such as panel NWXI, the black lacquer layers have been so reduced that the cardboard support shines through. Many areas in the black lacquer were inexpertly filled and damage to the glitter painting was amateurishly restored. Shrinkage cracks in the wood

9 Koller, M., Baumer, U., Analysis Report 20. 4. 2004, Wien 2004, p.10.

10 Zinc white was also found in places but these were later infillings; Jembrih-Simbürger, D., Schreiner, M., Analysis Report No /18 2003, Wien 2003, p. 12.

11 Jembrih-Simbürger, D., Schreiner, M., Analysis Report No /18 2003, Wien 2003, p. 5–8.

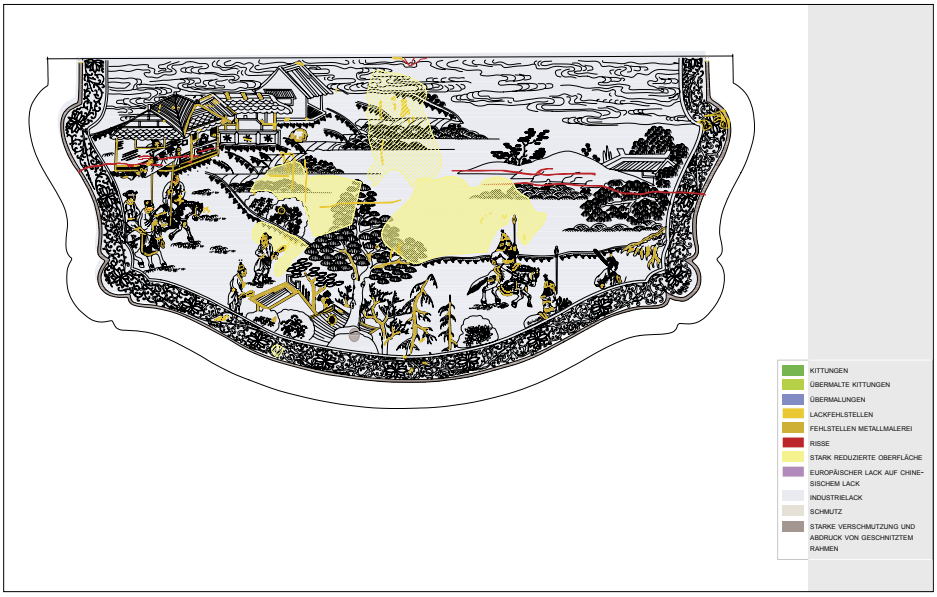

Fig. 5. Damage mapping table , © photo by P. Kopp.

structure of the support have also affected the black lacquer. The joints with the Chinese areas are so uneven that the difference in level is anything up to 5 mm. These areas were also crudely filled with the putty, covering the original glitter painting and amateurishly retouched.

The doors and the overdoors of the east wall are in a much better state of preservation than the panels on the north wall. Fortunately they were not covered with the same industrial varnish used to such disadvantage elsewhere. The overdoors are soiled but, apart from small lacunae, cracks and a slight craquelure, are in good condition. Cracks on the doors reflect movement in the wooden support resulting from climatic fluctuations. The lacquer surface is well-preserved apart from the heavy soiling and blooming in the areas bordering on the gilded carved ornament. Isolated areas of damage were later disguised with inappropriate and disfiguring painting of blossoms and fruit, using an unsuitable copper alloy powder.

The console tables have been reworked several times and were given various protective coats which have been enveloped with layers of grime and exhibit substantial damage due to wear and tear. The figures and buildings worked in relief are particularly abraded, revealing the underlying pink layer of the chalk ground. Isolated areas have separated from the wooden support and cleavage is apparent.

CONSERVATION CONCEPT

The conservation work on the Viennese lacquer panels is to be seen in connection with the conservation of the Chinese lacquer panels. At the time conservation work on the Viennese panels commenced, treatment of the Chinese panels was already well underway, the overfilling and painting having been removed, revealing the original nuances of the various metallic applications of the Chinese works. This more or less predetermined the concept for the Viennese works. Systems to remove layers of restoration without damaging the original binder had to be developed in order to reintegrate them visually to the context of the Chinese panels.

CONSERVATION TREATMENTS

The individual stages of conservation were determined on the basis of prior analysis and tailored to the various types of damage.[12]

CLEANING AND THE REMOVAL OF THE INDUSTRIAL VARNISH COAT

Various tests of solvents and with modified water in both liquid and gelled form were performed; the differing results determined the method for a subtle cleaning procedure and removal of the coat of industrial varnish from the Viennese panels. Enzymatic soap (DCA-TEA (triethanolammonium deoxycholate) with lipase VII) gave excellent results as far as separating the layer from the black lacquer, however proved to be too aggressive for the delicate areas of glitter painting: siccative oils had been used as a size for the painting and this was broken down by the lipase. Ethanol was successful in dissolving the industrial varnish, but also the lacquer coats underneath. Other solvent tests with mixtures of water and ethanol led to satisfactory results as far as removal of the industrial varnish coat while leaving the glitter paint and lacquer beneath intact. As a result, various water/ethanol Carbopol® gels were produced, (66/33; 50/50; 33/66) whereby (in contrast to the classic *Wolbers* gel), triethanolamine (TEA) was used instead of ethomeen to ionise and extend the polyacrylic acid.

These gels were easy to use and proved to be efficient and selective in removing the target coating. A pure water/ethanol/methyl cellulose gel (without Carbopol® /TEA) dissolved the industrial varnish only partially, even after long periods of exposure, which

12 The conservation team of the Viennese lacquer works were Peter Kopp, Sara Picchi and Irene Rützler.

Fig. 6. Removal of the surface coating, © photo by P. Kopp.

confirmed the selection of the gels mentioned previously. TEA possesses the slightly alkaline effect necessary to bring Carbopol® into solution as well as having the desired surfactant characteristics, which is why it could be used with a determined water-solvent mixture at a pH-value of 8.5 for the selective removal of the industrial varnish. The gel was applied and warmed in a climate-controlled crate (the thickness of the coating determined the length of exposure) and then removed with cotton swabs. Final cleaning was done with distilled water. The removal of the coat was easy to control as the swollen industrial varnish could be lifted like a film, with the difference in levels and colours being both readily felt and seen.

The identical treatment was used to remove the unwanted coatings on the console tables. The doors and the overdoors of the east wall still have the original transparent amber lacquer final coat which is why, unlike the north wall panels, only lacquer cleaning was undertaken. The initial tests had already shown that an aqueous buffer solution with a pH-value of 8.5 was suitable. As the addition of a tenside did not really improve cleaning efficiency, it was omitted (Brij 35) in order to avoid the unnecessary introduction of another substance to the historic fabric. Final cleaning was done with distilled water.

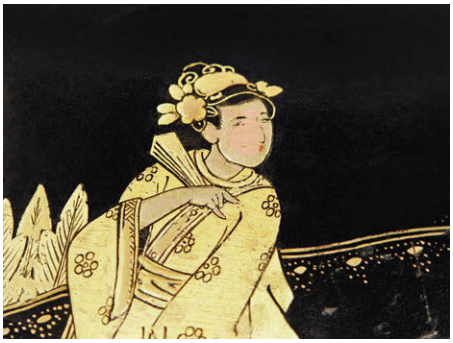

Fig. 7. Lady before retouching, © photo by P. Kopp.

Fig. 8. Lady after retouching, © photo by P. Kopp.

FILLING

After cleaning and the removal of the industrial varnish, the full extent of the lacunae became apparent. Numerous losses in the black lacquer and diverse restorations with substantial differences in surface levels meant that a putty system needed to be developed which, on one hand, would fill in the losses and level out the surface without damaging the original while on the other hand it could imitate the surface gloss of the surrounding areas. With this in mind, putty systems on an aqueous basis, and a wax and resinous-wax basis were tested: the aqueous and the wax systems had some disadvantages, e.g. the infill had to be polished after drying to achieve a perfectly smooth and homogenous surface (in the case of the animal glue and chalk/pigment putty) and both systems could not adequately approximate the depth and blackness of the original. The best result was provided by the following dammar-wax mixture: 15 grams of dammar, 3 grams of the micro-crystalline wax Tecero 30222, 7 grams of bone black. The ingredients were melted together over a hotplate and then poured into slabs to cool prior to storage for future use. Chips of these small slabs were inserted into the lacunae with a tacking iron. The infill was then levelled to match with its surroundings using the tacking iron (at 60–100 °C), with Melinex as an interlayer. This allowed the infill to be perfectly integrated with the original lacquer and the degree of gloss could be successfully imitated.

RETOUCHING

Retouching was carried out under consultation and in collaboration with Silvia Miklin-Kniefacz, who had restored the Chinese lacquer work and was in charge of the entire

Fig. 9. Doors, North wall after conservation (European lacquer marked in between red lines), © photo by P. Kopp.

project. Retouching of the losses in the black lacquer had already been accomplished with the wax-resin infills and therefore additional retouching was not necessary in these areas. The losses in the glitter painting were retouched using a blend of gold and composition gold powders and mica paints with pigments to approximate the varying shades, applied directly to the black lacquer or the relief paste using an oil-based gilding size.

SURFACE COATING

In order to approximate the degree of gloss on the Chinese works, a protective coating (MS2A in mineral spirits 100/140) was applied. The low-molecular cyclohexanone resin MS2A was chosen as it ages well and is reversible and does not attack the original black lacquer. It was dissolved in highly volatile mineral spirits so that the dammar-wax infills, which are likewise soluble in non-polar solvents, were not affected. The protective coating was applied prior to retouching in order not to dissolve the oil-based gilding size which bound the metallic powders. The overdoors presented a uniform and slightly glossy appearance after cleaning and so an additional coating was not deemed necessary.[13]

SUMMARY

As a result of the removal of the industrial varnish and the early twentieth century overpainting along with the development of a putty system to close losses in the black lacquer

13 Brunskog, M., Japanning in Sweden 1680s–1790s Characteristics and preservation of orientalized coatings on wooden substrates, Studies in Conservation, vol. 11, Göteborg 2003.
Cremonesi, P., l'uso degli solventi organici nella pulitura di opere policrome, 2, il prato, Padova 2004.
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and the subtle retouching of the glitter painting, a recovery of the original and harmonious rapport between the Chinese and Viennese lacquer panels, differing as they do in both material and technique, could be facilitated in such a way that they may now be appreciated once again as an aesthetic whole by the spectator. The astonishing grandeur of western and eastern craftsmanship has been restored to compliment and augment one another.

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YOSHIHIKO YAMASHITA, YASUHIRO HAYAKAWA, WATARU KAWANOBE, NORIKO HAYAKAWA

On the Conservation of a Lacquer Cabinet with Mounting in the Collection of the Museum of Applied Arts, Vienna

ABSTRACT

This paper describes the case study of the conservation of a cabinet with mounting in the collection of the Museum of Applied Arts Vienna. This treatment has been executed between 2007 and 2009 as a part of the Cooperative Programme for the Conservation of Japanese Art Objects Overseas conducted by the National Research Institute for Cultural Properties, Tokyo. *Urushi* has been used in Japan for at least nine thousand years. After the late 16th century, Europeans visited Japan and ordered many types of lacquer objects in relation to European culture. This type of box is known as a casket in the West and used as a jewelry box. In result of investigation using ultraviolet light, X-ray radiography, Fourier transform infrared absorption spectroscopy and portable X-ray fluorescence, there were many traces of conservation having been carried out in Europe. The inside of the lid and the body were coated with shellac and sprinkled with brass (90% copper and 10% zinc) powder which imitated gold. Arabesque patterns, flowers and other designs were drawn on the outside of the cabinet using the same materials. A great amount of maki-e powder had already become detached and consequently the urushi and foundation were exposed. There were cracks on almost all of the joints of the corpus. In particular, the substrate had become completely separated at the point where the curved side board of the lid and the joint of a frame of the lid converge. The object was restored in the same way as designated cultural properties in Japan. Traditional materials such as urushi were used for consolidation, but Paraloid B44N was employed to fix part of the wooden corpus. Gold, brass and tin powder were also used for colour matching. Export lacquer tends to have complex structural characteristics as well as European restoration materials such as varnish. Hence, to restore export lacquer both knowledge of materials and techniques with relation to Japan and Europe is necessary.

Fig. 1. Cabinet before restoration.

INTRODUCTION

This paper describes a case study on the restoration of a small lacquer cabinet with metal mountings in the collection of the Museum of Applied Arts Vienna (MAK). This object was restored in Japan between 2007 and 2009 as part of the Cooperative Programme for the Conservation of Japanese Art Objects Overseas conducted by the National Research Institute for Cultural Properties, Tokyo (NRICPT). The cabinet was made in Japan around 1650, but the shape is an imitation of a typically European form for 17th century caskets or cabinets, used for keeping jewelry, documents, letters and the like. The cabinet is a wooden box coated with black *urushi*. All the sides of the box are decorated with a landscape scene as well as birds and flowers in gold and silver *maki-e*. *Maki-e* is a traditional way of decorating *urushi* ware. Motifs are drawn with *urushi* on the surface and metal powder (*maki-e* powder) is sprinkled on before the *urushi* has dried. The lid, the inside of the body and the outer side of the foot are finished in *nashiji. Nashiji* is a type of *maki-e* decoration made by sprinkling small metal flakes. Several designs made in Europe are found in addition to the *maki-e* designs made in Japan.

Fig. 2. UV Photo/side of the body.

Fig. 3. X-ray fluorescence photo/sliding door.

ANALYSES

UV-analyses

UV-examinations revealed that several treatments had been made in Europe over a substantial part of the casket. For this reason, several scientific analyses were conducted.

X-ray radiography

X-ray radiography was conducted on the body and *maki-e* in order to confirm the inner structure.[1]

As a result, it was found that pieces of wood had been jointed around the bottom board of the lid and additions had been made to the substrate to repair the crack on the upper part of the sliding panel.

X-ray fluorescence analysis

In order to perform the material analysis of the casket, a portable X-ray fluorescence spectrometer was applied (see Figure 4). This spectrometer has been developed by the National Research Institute for Cultural Properties, Tokyo in 1999. It can be transported and operated anywhere, and can avoid moving objects or taking samples for analysis, which had been a major source of concern when investigating materials of cultural property. The instrument is 20 cm long, 20 cm across, and 30 cm high and weighs approximately 5 kg. The X-ray spectrometer and the power unit are connected with a 10m-long

1 Place: X-ray studio, National Research Institute for Cultural Properties, Tokyo; Day: 15/11/2007; Equipment: X-ray generator MCN167, Royal Philips Electronics; Tube voltage: 30kV~20kV, Tube current: 5mA~3mA, Time: 1min; Distance between the apparatus head and the object: approximately 150cm.

Fig. 4. Material analysis of the cabinet using a portable X-ray fluorescence spectrometer.

high-voltage power supply cable and a signal wire. A note-sized PC documents the system control and data analysis. It can be operated with only one socket since the power consumption of this system is less than 100 W. X-rays are generated by a small air-cooled X-ray tube, the voltage and current of which can be set up to 50 kV and 1 mA, respectively. The X-ray irradiation diameter may be changed between 2 mm and 15 mm by replacing the collimator at the spectrometer's head. The spectrometer's Si-PIN X-ray detector does not need liquid nitrogen cooling.[2]

The materials at 18 points of the cabinet were analysed (Figure 6). X-ray fluorescent intensities obtained from each point are listed in Table 1. The following factors should be taken into careful consideration when interpreting the results:

1. It is not possible to detect elements lighter than potassium of the atomic number 19 (ie. C, N, O, H, Al, Si, S, Cl).
2. The X-ray fluorescent intensity obtained shows an average composition from the surface to a set depth (for metallic copper, approximately several 10 μm in depth)
3. Since the detection efficiency of X-ray differs greatly according to energy, the ratio of the X-ray intensity among the elements is not consistent with the actual concentration ratio.

Gold and a small amount of copper were detected from the gold of the measuring points 1 and 2 on the surface of lid. The content was calculated to be Au 97% – Cu 3%. However, copper and zinc were detected in the gold-coloured points 4, 5, 6, 9, 10 at the lid and 12, 13, 16, 17 18 at the body part of the cabinet. It was estimated that brass (Cu-Zn alloy) powder was used instead of gold *maki-e* powder. The content was calculated to be

2 The conditions for analysis of the cabinet were: Apparatus: Portable X-ray fluorescence spectrometer SEA200 (Seiko Instruments Co. Ltd); Target: Rh (rhodium); Tube voltage, current: 50kV · 100 μA; X-ray radiation diameter: ϕ2 mm; Measuring time: 100 sec.; Measuring atmosphere: Air; Distance between the apparatus and the sample: approximately 10 mm.

No.	Measuring points		Color	X-ray intensity (cps)							Content (wt.%)			
				Calcium Ca-Kα	Iron Fe-Kα	Copper Cu-Kα	Zinc Zn-Kα	Silver Ag-Kα	Gold Au-Lβ	Mercury Hg-Lβ	Gold	Silver	Copper	Zinc
1	Cloud	Lid outer top	Gold		27.4	2.3			31.3		98		2	
2	Mountain	Lid outer top	Gold		33.9	2.9			15.6		96		4	
3	Plant branch	Lid outer top	Red		53.0					3.0				
4	Edge line	Lid outer top	Gold		16.9	435.2	94.4			17.3			89	11
5	Edge line	Lid inner	Gray	19.5	3.1	110.0	21.0			8.8			90	10
6	Foundation	Lid inner	Gold／Black	38.3	10.5	219.4	35.5						92	8
7	Cloud	Lid outer front	Silver	6.0	14.0			0.1		0.0				
8	Roof	Lid outer front	Red／Gold		11.7				29.4	15.2				
9	Flower	Lid outer edge	Gold		35.5	154.1	30.5			2.7			90	10
10	Foundation	Lid outer edge	Gold／Black	9.9	4.5	102.7	34.1			16.3				
11	Plant	Lid outer back	Brown／Silver	0.1	18.8					3.7				
12	Edge patten	Body outer front	Gold	9.7	58.3	173.9	34.5			8.1			90	10
13	Petal	Body outer back	Gold	18.9	8.4	515.3	100.2			7.3			90	10
14	Bank	Body outer right	Silver		23.8			4.3						
15	Leaf	Body outer right	Silver／Gold		59.0	6.0		0.1	3.8	1.9				
16	Leaf	Body inner	Gold	22.0	7.7	425.3	83.8			5.8			90	10
17	Leaf	Body inner	Gold	2.1	18.3	576.9	116.4			6.8			90	10
18	Missing	Body outer left	Gray		44.3	247.2	50.1	0.9		3.7			90	10

Table 1. Results of X-ray fluorescence analysis of the cabinet

Cu 90% – Zn 10% used in these points, and this material was determined used in a past restoration. For silver coloured parts, silver was detected from measuring points 7 at the lid and 14, 15 at the body, but none from the point 11 at the lid. Mercury was found at the red-coloured points 3 and 8 on what are considered to be original portions of the lid. Mercury was also detected in many other points measured, because cinnabar (HgS) was included in the *urushi* under-layer.

FT-IR (Fourier transform infrared spectroscopy)

Instrument : FT-IR 8700 (Shimadzu Corporation) with Dura sample IR attached.

- Samples

a) translucent brown paint of the box (front, *nashiji)*: This sample was soluble in ethanol.

b) brown fragment on the back side of the box (left foot, *nashiji*): The surface part of this sample was soluble in ethanol, whereas the lower part was insoluble to ethanol.

- Reference materials

a) dewaxed shellac

b) *urushi* paint from a 15th century object

- Result

The spectrum of sample A showed strong absorption around 1700 cm^{-1}assigned to C = O stretching and broad absorption around 3400 cm^{-1} assigned to O-H stretching. It is suggested that sample A is shellac because of the spectrum and its solubility in ethanol.

Spectrum of sample B also showed absorption around 1700 cm^{-1}assigned to C= O stretching and broad absorption around 3400 cm^{-1} assigned to O-H stretching. This spectrum is not clear and therefore it is difficult to draw a conclusion, but it can be assumed to be also shellac.

CONDITION AND DAMAGE

There were many traces of restorations which had been done in Europe. Only the outer side of the top board of the lid, the outer side of the curved side board of the lid and the front, left and right sides of the body are original. All other areas of the original substance had been covered with black western varnish and then decorated to imitate *nashiji* and *maki-e*. A white ground was used to fill parts of the missing foundation on the lid and around the metal locks of the body. Filling material applied during a European restoration was also found around the nails of the right, and a corner mount from another object was applied on the lid. An iron nail had been used when repairing the metal lock on the inner side of the lid. The hinge, which was also thought to be from a past conservatoin work, was attached with slotted iron screws. Since a non-Asian material had been applied over parts that had been reproduced in Europe, it is assumed that the object had been repaired several times in the past.

There was dust and dirt over the entire object and conservation materials were also found on the original portions, resulting in blotches. Deterioration caused by UV-light was also found on the *urushi* coating film, *maki-e* and even on the surface of the layer applied during past conservation work so that the object had lost its luster.

A great amount of *maki-e* powder had already become detached and fallen off, exposing the *urushi* and foundation. There were six holes on the lower part of the foot and it is assumed that these had once held now-lost wooden nails. There were cracks on almost all of the joints of the wood. In particular, the body had become completely separated at the area around the joint between the curved side board of the lid and the frame of the lid, thereby causing considerable instability. The bottom board was cracked near the centre, and there were cracks around the joint of the substrate. The coating had lifted and a great amount of this layer and the ground had become completely detached. There was also damage caused by abrasion and impact, and *maki-e* powder was severely damaged as a result of corrosion. The nails of the metal locks and the corner fitting had become loose

and one of the lower corner fittings was corroded. In addition, a part of the metal bar on the lock was protruding and damaged the reverse side of the top board of the lid.

CONSERVATION SPECIFICATIONS

The object was restored in the same manner as designated cultural properties treated in Japan. In other words, the maintenance of the present condition was sustained and in principle, traditional conservation materials were used. As much as possible of the reproduced *maki-e* which had been applied with western materials was removed. Conservation was undertaken not only on the surface layer and *maki-e* portions but also on the distortions of the metal fittings. Loosened nails used in previous restorations were removed and replaced with new ones. The protruding part of the metal lock on the lid was filed down to a degree that the lid would not be damaged and its shape was corrected.

The nails which had been used to re-attach the corner pilaster were removed and instead a reversible synthetic resin (Paraloid B44N) was applied to adhere it. The missing ground and cracks, other than on the foot, were infilled and the colour adjusted to match the surrounding. Gold powder, tin powder and brass powder were used to correct colour blend. A paulownia box for storage and a silk wrapping cloth were made. Photographs were taken before and after conservation work, which was conducted in the Restoration Studio *(Urushi)* of the National Research Institute for Cultural Properties, Tokyo. When it was considered necessary to change parts of the conservation parameters, a discussion was held with the person in charge at the Institute.

RESTORATION PROCEDURES

1. Photographic documentation before conservation: first, the condition and damage were examined carefully. Thirty-five millimeter and digital photographs were taken before conservation.
2. Removal of the lid: in order to proceed with the work of adhering the cracks on the lid, permission was obtained from the Museum to remove the hinges. The lid was removed from the body. The screws of the hinges were stored separately.
3. Manufacture of a stand: a stand was made to hold the lid while doing work to prevent the cracks on the curved side board of the lid and frame of the lid from spreading. A plywood board and a rubber board were used to make the stand in the shape of the lid.
4. Adherence of the substrate: in order to correct the distortion of the wooden substrate that had occurred around the area where the curved side board of the lid and the

frame of the lid joint, the lid was placed in a humidity chamber. Once the substrate had regained its resiliency, a wooden frame, bamboo sticks and clamps were used to gradually apply pressure. Then *mugi-urushi* diluted with a solvent was impregnated into the wooden substrate, and the curved side board and the substrate of the lower portion of the lid were adhered. Excess *urushi* was wiped off thoroughly, and the object was left to harden for several weeks. After the lid was removed from the press, a difference in level on the reverse, which was the result of cracking, was corrected as much as possible and adhered with *mugi-urushi*.

5. Removal of the metal lock: before cleaning, the lock plate of the body lock and the lock of the lid were detached (without removing the fitting of the lid). In removing the nails, care was taken so as not to damage the surrounding surface coating. A plastic sheet and a stainless steel spatula were used. The metal fittings of the locks and nails that were removed were stored separately.
6. Cleaning: in order to remove the western coating material, a trial test was done by using organic solvents. First, dust and dirt that had accumulated on the coating film were removed with water. Then xylene, toluene and DMSO (dimethyl sulfoxide) were used to remove the substances that had attached themselves to the entire surface. For the *maki-e* portion, organic solvent (DMSO) was applied to the surface only with a brush. After having dissolved the coating material that had been applied in the past, the solvent was carefully wiped off with paper. Finally, ethyl alcohol was used in the final step of cleaning the coating film and *maki-e*. In order to remove the corrosion on metal fittings, mechanical cleaning was done by using a spatula that was made of tortoiseshell.
7. Reinforcement for the *maki-e* and coating film *Kijiro-urushi* diluted 4 to 5 times with Cleansol G was applied to the *maki-e* with a brush and lightly wiped off with ligroin (a hydrocarbon solvent), before it hardened. *Maki-e* was reinforced twice.
8. Prevention of the loss of the coating film: *Mugi-urushi* diluted with a solvent was impregnated into the lifted surface layer on the top board of the lid and the rim of the body. A wooden frame, bamboo sticks and clamps were used for pressure stabilization.
9. Reinforcement of cracks: cracks that were found on almost all the parts of the corpus were consolidated by impregnation with *mugi-urushi* that had been diluted with ligroin. Excess *mugi-urushi* was completely wiped off with ligroin.
10. Removal of the nails from the pilaster and re-attachment: a plastic sheet and an iron spatula were used to remove the two nails that had been used in an earlier conservation to fix the pilaster on the right front. Then it was re-attached to the previous position with a mixture of Paraloid B44N and 35% xylene.
11. Replacement and infilling of the missing parts: parts damaged by impact and parts where the foundation had been lost were filled with *kokuso* and then reshaped by us-

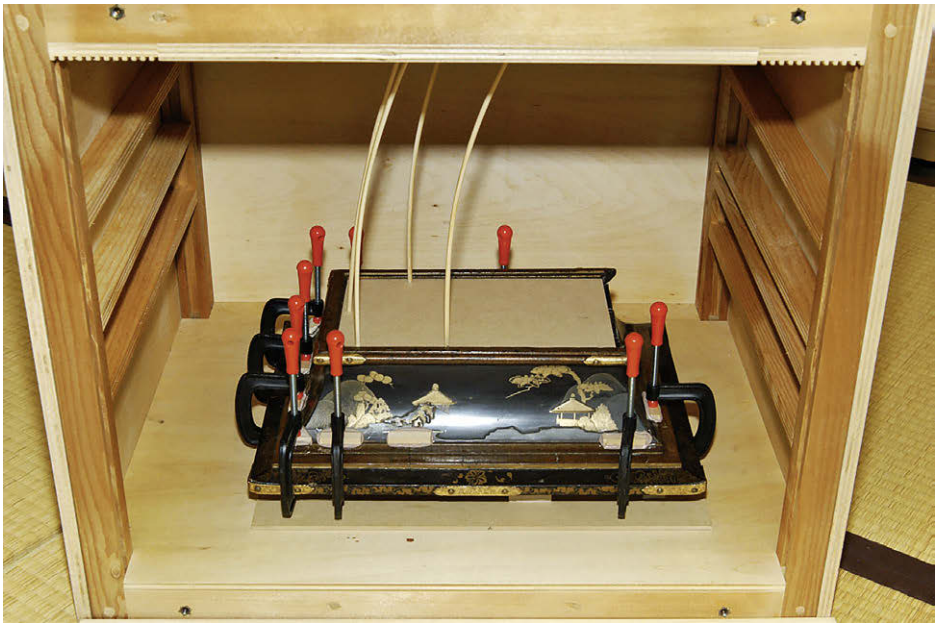

Fig. 5. Pressing the lid.

Fig. 6. Reinforcement/ top of the lid.

Fig. 7. Applied tin colour on cracks.

ing *sabi-shitaji*. This was followed by applying *kuro-urushi* several times to adjust the surface. A ground was also inserted into the cracks, which were then coated with *urushi* as needed.

12. Colour adjustment: colour adjustment was made to areas where the shape had been reproduced. Tin powder and gold powder were used for the inside of the lid, while brass powder and *urushi* kneaded together was applied to other parts with a brush. *Kijiro-urushi* was applied over this to adjust the brown colour.
13. Manufacture of new nails and adjustment of metal fittings: in order to exchange the

two iron nails of the metal lock of the lid that had been used in a previous conservation and that had become loose, new brass nails were made in the shape of the original. In order to adjust the colour of the nails, *kijiro- urushi* blended with a small amount of oil soot was applied with a brush and heated over fire. The shape of the protruded part of the metal lock was modified with an iron file. *Kokuso* was filled into the nail holes as necessary so as to ensure that the nails would stay firmly in place.

14. Attachment of the metal fittings: the metal locks of the lid and the body were attached to their original positions. Two new nails were used to attach the metal lock on the inside of the lid.
15. Manufacture of the paulownia box and wrapping cloth: a paulownia box and a wrapping cloth were made for the object. Paulownia grown in Japan was used for the box and *habutae* silk was used for the wrapping cloth.
16. Photographing after restoration: as a final procedure, photographs were taken after restoration to complement those taken before restoration.

CONCLUSION

Exported *urushi* ware has been restored repeatedly in the West, and in many cases other materials have been applied many times over the *urushi* coating layer. This casket had been restored by using western coating material. Moreover, not only were designs drawn over the original *maki-e* with brass powder and coating material, but furthermore new designs were even drawn on the areas where it is believed that there had been no design originally. X-ray radiography and examination of the surface of the object also revealed that the wooden corpus had also been subjected to conservation. It could therefore be possible that the casket was once partially dismantled and re-assembled. Since the conservation of exported *urushi* ware requires not only correct conservation techniques for *urushi* objects but also a knowledge of western materials and techniques, it may be stated that cooperation with researchers and restorers from the West is very important.

Fig. 8. Cabinet after restoration.

EWA BJÖRDELL, CARMEN ROMERO

A Description of the Conservation Project on the 18th Century Asian Lacquer Panelling from the Chinese Pavilion, Drottningholm Palace, Stockholm

ABSTRACT

The Chinese lacquer panelling at the Chinese Pavilion of Drottningholm Palace in Stockholm comprises of export lacquerwares made for the European market. When sent to Europe they served a different use, most probably as parts of various screens, though now they act as wall panels in two different rooms: the Red Room and the Yellow Room. The Chinese Pavilion is just one part of the Royal Domain of Drottningholm, which has been on the UNESCO World Heritage list since 1991. The conservation project on the lacquer panels was undertaken in situ at the Chinese Pavilion during the summers of 2011 and 2012. Since the building is more or less left unheated off-season, it is only open to the public in the summertime. In all, fifty-one Chinese panels were treated together with three European panels in imitation of Chinese style. Since the Chinese Pavilion is a Royal Palace, the different kinds of treatment the panels have undergone are quite well documented. The first large intervention took place as early on as the eighteenth century. In the autumn of 2010 a number of tests were carried out together with conservator Silvia Miklin-Kniefacz from Vienna, with the objective of finding the most suitable consolidation medium. The tests were made using different kinds of synthetic binders, including micro-crystalline wax and also mugi-urushi. Prior to the beginning of the conservation work in May 2011, the results of the different tests were evaluated and it was decided to proceed with a synthetic binder to consolidate the flaking lacquer.

During the conservation project the panels also underwent other treatments, including cleaning, and since they had been varnished this meant treating a varnished surface rather than lacquer. The coating was only removed on one of the panels since the work proved to be both very difficult and time consuming. Aesthetic interventions included the infilling of missing lacquer with a pigmented microcrystalline wax and retouching with mica-pigments and Lascaux Retouching Medium.

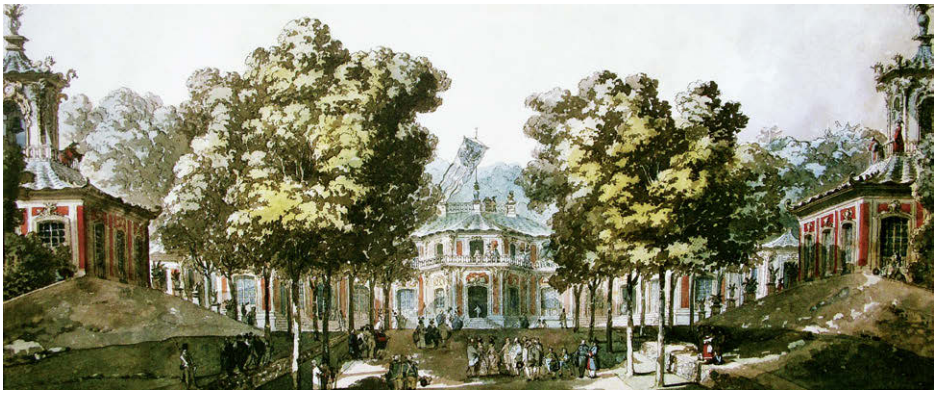

Fig. 1. The Chinese Pavilion as depicted by the Franco-Swedish artist Louis Jean Desprez in 1788, © http://sv.wikipedia.org/wiki/Kina_slott#mediaviewer/File:Kina_slott_Desprez_1788.jpg.

DROTTNINGHOLM AND THE CHINESE PAVILION

Drottningholm Palace and its surrounding park and buildings have been on the UNESCO World Heritage List since 1991[1]. It was the first site in Sweden to be accorded this honour. This is the best preserved 17th century Royal Palace in Sweden and is at the same time representative of European architecture for the period. The palace has been the permanent residence of the present Royal Family since 1981, and the site is administered by the Swedish National Property Board, which maintains nine of the Royal Palaces. King Adolf Fredrik (1710–1771) surprised Queen Lovisa Ulrika (1720–1782) on her birthday in 1753 with a small Chinese Pleasure Pavilion in the Drottningholm Palace Park. Queen Lovisa Ulrika was the younger sister of Friedrich II (Frederick the Great) of Prussia, who had given a Japanese tea house as a birthday present to another sister, Wilhelmine of Bayreuth.[2]

The original wooden building was replaced in the 1760s by a more permanent structure. It is not certain why the first palace was dismantled but it is probable that it had been attacked by fungus. Work on the second Chinese Pavilion, designed by Carl Fredrik Adelcrantz, was begun in 1763, and the building was completed in 1769.[3] Jean Eric Rehn led the work on the interiors.[4] The architecture is basically French Rococo, but has an exotic character consisting of Chinese and Oriental elements. The architect Jean Eric Rehn, who did the interior drawings, was very much inspired by the Scottish/Swedish

1 Alm, G. (Ed.), Kina slott, Stockholm 2002, p.12.
2 Alm, G. (Ed.), Kina slott, Stockholm 2002, p. 16.
3 Setterwall, Å./Fogelmarck S., Kina slott på Drottningholm, Malmö 1972, p. 24.
4 Setterwall, Å./Fogelmarck S., Kina slott på Drottningholm, Malmö 1972, p. 50.

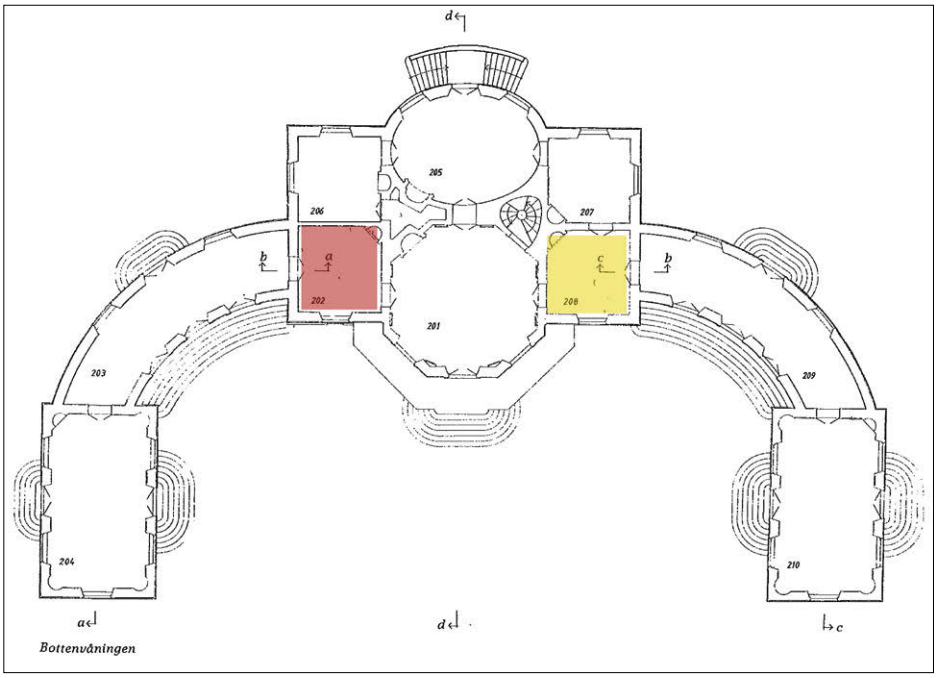

Fig. 2. A plan showing the ground floor, where the Yellow and Red Rooms are marked.

architect William Chambers. The Red Room and the Yellow Room especially show great resemblance to the authentic interiors in Chambers' book, "Design of Chinese Buildings, Furniture, Clothing, Machines and Utensils", published in 1757.[5]

There are in all fifty-one panels, ten in the Yellow Room and forty-one in the Red Room, the names of the rooms based on their predominant colour scheme. The wooden walls *(boiserie)* in the Red Room were originally painted using the red pigment cinnabar, and the Yellow Room using orpiment. Both rooms also have gilded framing and decorations. During the conservation project we discovered that three of the panels in the Red Room are in fact European lacquers (japanning), a fact unknown before the work had started since the copies had been so well integrated with the Chinese pieces. As described in the archives, the first Chinese Pavilion contained forty-eight lacquer panels. We therefore think it most likely that the present lacquered panels came from the first Chinese Pavilion and the 3 European were added for the second pavilion. In the Yellow Room there are ten lacquered panels adapted from a folding screen which was split. When these are reassembled it is possible to imagine what the screen must have looked like even

5 Alm, G. (Ed.), Kina slott, Stockholm 2002, p. 201.

Fig. 3: In the Yellow Room there are ten lacquered panels originating from a folding screen which has been split up, © photo by E. Björdell.

if some parts are missing, the motif on one side depicts "The Pearl River and Canton" with its surrounding harbours, while the opposite side shows "The Preparation for the Large Dragon Boat Feast", traditionally celebrated in South China.[6] In the Yellow Room, however, the panels are not displayed like this today. When they were remounted it was decided that they should continue to be displayed just as before the conservation treatment. The placing of the panels in the rooms has changed over the years, a fact borne out by the markings and notes on their reverses. They have been taken down two or possibly three times, but not necessarily replaced in exactly the same way.

At Tullgarn, another Royal Palace outside Stockholm, there is a piece of furniture where parts of a panel from the screen in the Yellow Room have been re-used. This bureau was made for Queen Lovisa Ulrika ca. 1770.[7] In the Red Room there are forty-one

6 Setterwall, Å./Fogelmarck S., Kina slott på Drottningholm, Malmö 1972, p. 138.

7 Alm, G. (Ed.), Kina slott, Stockholm 2002, p. 242.

Fig. 4. In the Red Room there are two different kinds of lacquerwork, including thirty-eight Chinese panels and three European imitations, © photo by E. Björdell.

lacquered panels, of two different types. One row consists of five pieces and we believe they, too, originate from screens which have been split. The two different types of panels have different motifs, one showing landscapes with buildings and figures and the other with cliff formations, flowers and butterflies.

THE STRUCTURE OF THE LACQUER PANELS

In 2008 Maria Brunskog made a study of the structure of the panels. Her research has served as an initial basis for our knowledge about the panels. Maria Brunskog found that the comparatively simple structure of the lacquer layer and noticeably low quality of the wooden substrate indicates manufacture for export rather than for the more knowledgeable and quality-conscious domestic market. The original surface treatment consists of two layers of primer, reinforced with an intermediate layer of indeterminate fibres,

seemingly paper-like in structure. *Laccol* lacquer had then been applied to this foundation in two layers, both of which are entirely smooth and even, indicating meticulous polishing. For the decoration gold powder was sprinkled on a reddish-brown lacquer size without an additional layer. All these factors support earlier suggestions that the panels were 'export lacquer', which by the 1760s was already being exported to Europe from, for example, Canton, in relatively large amounts. However, what we see today, especially on the panels in the Red Room, is the result of a series of comprehensive restorations, some of them as early as the 1780s. There are areas which are filled with a material foreign to Asian traditions, appearing in cross-section as an opaque white layer. Retouching has either been applied directly onto the reddish-brown lacquer layer, or onto the white filler. Retouching was done using European oil-based lacquer and techniques. The lacquer panels have 1–2 layers of European varnish made of shellac with traces of linseed oil and pine resin.

PREVIOUS RESTORATIONS

According to earlier documents found in the archives and relating to the first pavilion, the lacquerware was moved out of the building during the winter and stored elsewhere. In 1782 the panels were "mended, varnished and polished by John Klewström". We therefore believe that the most comprehensive effort to tackle the lacquer had already been undertaken at the end of the eighteenth century. In 1928 the lacquerware in the Yellow Room was treated as follows: loose lacquer was consolidated, old repairs were removed and redone and the mother-of-pearl was completed. As a final step, all the lacquerwork was covered with animal glue and silk. In 1935, the lacquerwork in the Red Room was glued down with silk. In 1959–1960 the silk was removed, and "a coat of varnish was removed. The lacquer was fixed and as a final treatment it was treated with spirit varnish and then polished."

THE CONSERVATION PROJECT 2010–2012

The climate at the Chinese Pavilion is more or less the same as the outdoor climate, as there is only very limited heating off-season. The Pavilion is open to visitors from May to September. During the winter season the relative humidity can vary between 20 % and 80 %. Regarding light, the building has large single-glazed windows without any UV-protecting film. The windows in the two rooms face North-West and have thin linen curtains which are drawn back during opening hours. Since the rooms where the lacquer

Fig. 5. A panel from the Red Room with cliff formations, flowers and butterflies. The photo was taken before conservation showing the flaking, © photo by E. Björdell.

Fig. 6. The lacquerwork has suffered photochemical deterioration, but the borders have been protected from light and remain undamaged. This photo shows a detail from a lacquer panel in the Yellow Room, © photo by E. Björdell.

panels are mounted have far from ideal conditions regarding light, temperature and humidity, the lacquerwork showed signs of extensive damage when the project began.

All the lacquer panels were photographed in 2007 and we were able to conclude that since then much new damage could be seen, which made consolidation treatment urgent. Since the panels have changed position over the years it is not possible to say that specific panels are in worse condition than others simply because they have been exposed to more daylight than others that are currently in better condition. The condition is more or less the same no matter where the lacquer panels are placed in the room. However, the type of damage varied between the different types of lacquer. Due to movements in the panels the lacquer was flaking from the support. Worst affected were the panels from the Red Room, mainly the floral lacquers. The cracks in these were primarily vertical. Another problem was delaminating layers of lacquer, mainly, but not exclusively on those which were red. There were also extensive areas of old repairs and retouching, not always very proficient. Often the areas with fillings had been sanded down, thereby damaging the surrounding lacquered surface. Since there is not enough UV-protection in these rooms the lacquerwork has suffered photochemical damage. In the Yellow Room there was another type of problem: blanching of the lacquered surfaces. The blanching occurred mainly in the secondary varnish covering the lacquers.

Silvia Miklin-Kniefacz came to do preliminary work on the lacquered panels on two occasions. The first time was in September 2010. Along with conservator Hans Peter Hedlund we made tests and developed a treatment programme for methods of working and materials to use considering the climate conditions on site. We did different consolidation tests during the autumn of 2010 and evaluated the results in the late spring of 2011. The tests included *mugi-urushi*, micro crystalline wax Tecero 30201, and the Lascaux Medium for Consolidation. Animal glue was excluded because of the climate conditions in the pavilion. We also tried a mixture of Medium for Consolidation and Plextol B500 (1:1). When evaluating the results we decided to use the Medium for Consolidation, occasionally mixed with Plextol B500 because this gave the best results and the Medium was easy to work with in comparison with, for example, *mugi-urushi*. Since we had to treat so many panels in such a limited period it was important that the consolidation method was not time consuming.

The treatment was carried out in two ways. In some areas the lacquer was glued down to the foundation and the wooden support, clamped, and left to dry for at least three days. In other areas, in which lacquer was lifting from lacquer, the medium required application with a syringe or brush. Those areas were left to dry until the next day when it was heat-activated and forced down with the pressure of a hot spatula. Visible residues of consolidant on the surface were initially removed with xylene but we soon discovered that distilled water was better as it did not blanch the surface to the same degree as the xylene.

We chose to remove the European varnish on one of the Red Room panels, and selected one of the floral pieces since these had suffered less photochemical degradation. The project to remove the varnish proved to be both difficult and very time-consuming as much more retouching and over-painting was needed than we had first estimated. This led us to the conclusion that the varnish was not feasible within the tight budget allocated to the project.

When the flaking and delaminating lacquer had been consolidated the infilling was undertaken using pigmented microcrystalline wax (Tecero 30222), which was also used to fill cracks in the 18th century fillings. These cracks were visible from far off and were quite disturbing. By filling them with pigmented wax they became less visible. The cleaning of the lacquered panels was done either with distilled water or with 1.5 % citric acid (pH 6). During the cleaning process we were able to eliminate much of the blanching. The retouching was done with mica pigments and Lascaux's Medium for Retouching.

We worked on the panels inside the Pavilion over two summers and had a studio in the Blue Saloon. All the visitors to the Pavilion were able to follow the work through glass panels, and posters outside provided information about the project. The plan was to work on the panels over a period of three years (summers), but before we started the sec-

Fig. 7. During the conservation project the Blue Saloon was used as a temporary conservation studio, where visitors to the Pavilion could follow the work, © photo by E. Björdell.

ond year we were informed by the Court that we had to finish within that same year. In consequence two thirds of the panels were treated during 2012, which was not ideal.

When we removed the panels prior to conservation we found that they had been mounted with nails bent over the lacquered surface to keep it in place. Previously the different panels in the Red Room had rested on each other separated only by a thin piece of wood. The lacquerwork was reassembled during the spring of 2013, and during this process we scrutinized all the surfaces and consolidated the lacquer where it had detached. This included new areas and areas where we had already glued down the lacquer to the foundation or the support; no new damage was visible in the areas where lacquer had been lifting from lacquer, nor had the blanching returned. On the whole we are satisfied with the results, even if these must be evaluated in terms of urgent treatment. To create a barrier against changes in humidity we put up Tyvek on the walls before re-mounting the panels. We have also developed a new method of mounting, making it easy in future to take down individual panels in the Red Room if and when further consolidation is needed. We feel that this will be a great advantage as this was not previously an option.

ON THE MEDIUM FOR CONSOLIDATION FROM LASCAUX (MFK)

The Medium for Consolidation is a product of cooperation between Hans Peter Hedlund of the Swedish National Heritage Board, KTH Royal Institute of Technology in Stockholm and Lascaux. The objective was to create a synthetic binder to replace Acronal 300D, which has been widely used in Sweden since the 1980s but went out of production at BASF in the 1990s. The aim was to find a product with a very small particle size, extremely low viscosity and low surface tension, enabling it to penetrate almost any paint layer in the same way as Acronal 300D. It also needed to withstand the effects of light, temperature and humidity. A further requirement was the formation of a macroscopic layer with sufficient elastic strength to tolerate possible future dimensional variation of the substrate. After several years of testing MFK was on the market and has become the most widely used consolidation product for flaking paint in Sweden.

CONCLUSION AND FUTURE PLANS

We note that some new blistering has occurred on the lacquer of the panels in the Red Room. It has detached where the lacquer had been consolidated with the wood. There is no new flaking where we glued the lacquer to lacquer. The new blistering is mainly on panels with floral motifs, where there are long vertical cracks extending in some places almost from one corner to another. We note that the lacquer has become detached mainly in the joints between the different boards, and believe that this is caused by movements in the wood being too severe so that the consolidation medium has not, despite all efforts, been able to hold down the lacquer. Considering that improvements in the interior climate of the Pavilion are in progress, we reckon to be able to maintain 40–60% RH and a more stable temperature, which will also be better for the synthetic binding material used for the gluing.

We plan to treat 4–6 panels per annum, during which we shall go over each surface in minute detail and consolidate all the cracks as well as leaving the glued surfaces in clamps over a much longer period. It should be remembered that we dealt with a large number of panels in a very short time and only on limited surface areas. The whole procedure was more in the nature of an acute rescue operation because of the very poor state of the lacquer when we started. There were cracks which we did not have time to consolidate since we were forced to prioritise others which looked worse, where the lacquer was in danger of falling off. Furthermore, lack of space precluded clamping these areas for more than 3–5 days. By examining the lacquer over a longer period of time and treating all the new cases of suspected flaking more judiciously we hope to avoid having to carry

Fig. 8. The lacquer panelling was re-assembled during 2013. Tyvek was put up on the walls to act as a barrier against humidity changes before re-mounting the panels, © photo by E. Björdell.

out a rescue operation of this kind ever again. Our objective is to have greater control and follow-up of the different panels. By means of the new mounting system we developed it will also be easier to remove individual lacquered panels and replace them with photographs mounted on cardboard while the work is in progress. A future objective is to obtain UV-protective film for the windows in these rooms, though how this is to be resolved has yet to be decided.

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VÁCLAV PITTHARD, SABINE STANEK, MARTINA GRIESSER, SHUYA WEI, MANFRED SCHREINER, SILVIA MIKLIN-KNIEFACZ

Stratigraphy and Material Analyses of the 18th Century Asian Lacquer Panelling from the Chinese Pavillion, Drottningholm Palace, Stockholm

ABSTRACT

The two lacquer rooms of the Chinese Pavilion of Drottningholm Palace, Stockholm, underwent a thorough conservation. Within the framework of this project three lacquer panels of different types, but all decorated with Asian landscapes and flowers, were selected for further investigations by means of optical microscopy and SEM as well as GC/MS at the Conservation Science Department of the Kunsthistorisches Museum Vienna (KHM) and (Py)-GC/MS techniques at the Institute of Natural Sciences and Technology in Art, Academy of Fine Arts Vienna. This comprehensive research revealed a multi-layered structure of the coating with two ground layers containing earth pigments and a proteinaceous medium, followed by an intermediate paper layer with shellac in between. The upper ground is coated by a set of pigmented Asian lacquer layers composed of laccol (Rhus succedanea) and cedar oil. The red lacquer, which was used for the underpainting of the gold decoration, contains red iron oxide whereas the red lacquered borders on the panels of the Yellow Room are pigmented with cinnabar. The pigments which create the "bronze" appearance of the flower panels of the Red Room were identified as realgar with additions of mica and small amounts of lapis lazuli. The uppermost transparent brown layers are later additions and reveal the presence of drying oils.

INTRODUCTION

The 18th century Chinese Pavilion is situated on the grounds of Drottningholm Palace, the private residence of the Swedish royal family, surrounded by opulent gardens and parks on the outskirts of Stockholm. The lavishly decorated interiors of its two lacquer rooms – named Red Room and Yellow Room – recently underwent a thorough restoration by Ewa Björdell and Carmen Romero (Stockholms Målerikonservering AB). Within the framework of this complex project we were asked for support and the in-

vestigations of three lacquer panels of different types (A, B, C) decorated with Asian landscapes, flowers and butterflies. Initial analyses had already been made in 2007 by Maria Brunskog and Jens Glastrup.[1] However, at that time the composition of the Asian lacquers could not be identified, and therefore, it was decided to repeat the analyses. Moreover, to support the decision of whether or not to remove later coatings on the lacquer panels, the composition of the varnishes was also studied. Finally, it was hoped that a better insight and understanding of the Chinese lacquer technique and the materials used was to be gained.

EXPERIMENTAL PART

The Red Lacquer Cabinet (Red Room) is decorated with 24 horizontal panels depicting landscapes (type A) and 17 panels with flowers and butterflies (type B) while the Yellow Lacquer Cabinet (Yellow Room) is decorated with 10 vertical panels with ornamental borders on the top and bottom (type C) (see Fig. 1). After a primary on-site examination a set of samples was taken for the subsequent investigations (see Table 1 for details).

Samples were initially examined by optical microscopy (OM) with a stereo-microscope Stemi 2000-C, Zeiss, Germany, and subsequently, a set of samples prepared as cross-sections: small particles were embedded in epoxy resin and polished after curing. These sections were used for microscopic measurements and histochemical staining[2] to identify and map the presence of binders in the multi-layered structure. The microscopic investigations were carried out under incident light either using polarised light or in the dark field mode, but also using UV-fluorescence ("blue" filter set 09 – excitation wavelength 450–490 nm, "UV" filter set 01 – excitation wavelength 365 nm). Where necessary the microscopic investigations were complemented by scanning electron microscopy (SEM) studies to identify the inorganic components of the ground layers and decorative elements. A FEI Quanta 200 F electron microscope equipped with an EDAX X-ray detection system was applied.

The second set of samples was used directly for gas chromatography/mass spectrometry (GC/MS) to detect lipids and resins as well as proteinaceous binding media. Pyrolysis (THM-Py-GC/MS) was also applied to identify Asian lacquers. The presence of oil, protein and resin was proved by special wet-microchemical tests for samples which were

1 Glastrup, J., Nationalmuseet Brede, Kongens Lyngby, unpublished report, Denmark 2007.

2 Schramm, H. P./Hering, B., Historische Malmaterialien und ihre Identifizierung, Stuttgart 1995. Jütte, W., Mikrochemischer Nachweis natürlicher Harze mit Alkannafarbstoffen in Querschliffen von Malschichtproben, in: Vendl, A./Pichler, B./Weber, J./Erlach, R./Banik, G. (eds.), Wiener Berichte über Naturwissenschaft in der Kunst 6/7/8, Wien 1989/90/91, p. 85–93.

Fig. 1. Red lacquer cabinet interior (left) and Yellow lacquer cabinet interior (right), © Drottningholm Palace, Stockholm/photo by S. Miklin-Kniefacz.

not analysed by OM. To detect the presence of starch and blood as a binder in the ground layers, spot tests were used for material characterisation. The latter analysis is based on an enzymatic reaction of peroxidase: addition of H_2O_2 causes haemoglobin to decompose into water and oxygen. The latter oxidises benzidine, which becomes visible by a change of colour to a blueish-green shade.[3]

The GC/MS analytical procedure for the analysis of lipids is based on the transesterification of fatty acids and the determination of their relative ratios to identify particular lipids. The analytical procedure for the analysis of resinous binding media is based on the esterification of resinous acids followed by the identification of particular resins according to their resinous acid methyl esters. For the analysis of proteinaceous materials, the analytical procedure is based on an acidic hydrolysis of proteins to liberate amino acids, followed by the derivatisation and quantitative determination of amino acids as their

3 Odegaard, N./Carroll, S./Zimmt, W. S., Material characterization tests for objects of art and archaeology, London 2005.

silyl derivatives.[4] The procedure for thermal assisted hydrolysis and methylation pyrolysis (THM-Py-GC/MS) with TMAH analysis was performed as follows: about 0.1 mg of the samples was placed in a cup and then 3 µL of 25% aqueous TMAH (Aldrich, USA) solution were added to the sample. The cup was introduced into the pyrolyzer (furnace) by the auto-sampler and pyrolysed immediately. Likewise, direct Py-GC/MS without the presence of TMAH reagent was also performed. Experimental details on the analytical instruments used and the most important measurement parameters are given in Table 2.

RESULTS AND DISCUSSION

Panel 10.5, type A

The panel 10.5 examined from the Red Room is coated with a thick varnish layer covering previous consolidation and extensive retouching. The varnish seems to cause a certain tension on the gold decoration – at least in some parts, where an extreme flaking is observed. Before making any decisions about removing or reducing the varnish, it was essential to know its composition. Sample A1 was taken to reveal the stratigraphy by a cross-section and staining and to see if there are more than one varnishes present; for sample A2 the varnish was separated by scraping with a scalpel under visible light and a UV torch, using magnifying glasses; and sample A4 was taken to identify the Asian lacquer (without the varnish) (see Fig. 2).

Microscopic examination of the cross-section prepared from sample A1 (see Fig. 3) showed the presence of two coarse ground layers separated by a thin intermediate layer, probably paper. These preparatory layers are separated from the upper ones by another very thin organic layer, which is presumed to be shellac because of its specific orange UV-fluorescence. Observation of the cross-section under UV-light helped to distinguish the overlying lacquer layers, which appeared as a single dark structure in visible light. The exact, smooth symmetric characteristics of these layers suggest the reapplication of several polishing steps. The subsequent red layer and thin application of metal is part of the decoration on the top of the panel. A thin, transparent, UV-fluorescent coating finishes the multi-stratified structure. Specific staining tests were applied to simultaneously identify and map organic paint materials within the cross-section. The complementary use of amido black AB2, alkanet and rhodamine B enables the proof and localisation of the use of special organic binders such as

4 Pitthard, V./Griesser, M./Stanek, S./Bayerová, T., Study of Complex Organic Binding Media Systems on Artworks Applying GC-MS Analysis: Selected Examples from the Kunsthistorisches Museum, Vienna, in: Macromolecular Symposia, vol. 238(1), 2006, p. 37–45.

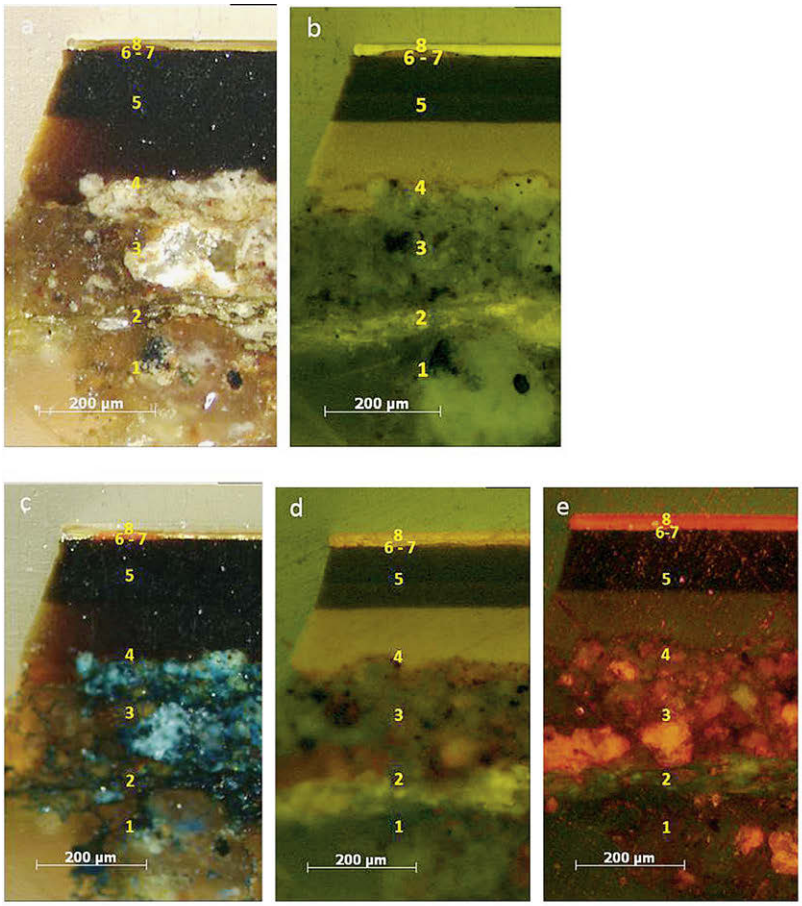
Fig. 2. Panel 10.5 (A): Sampling spots of samples A1, A2 and A4, © Drottningholm Palace, Stockholm/photo by M. Larson.

proteins, resins, and oils. Furthermore, both, resin and oil were detected not only in the ground but also in the coating layers, while protein could only be observed in the ground layer. After separating the two ground layers by scalpel under a microscope, both samples were analysed for blood, which turned out to be present in both of the samples, but should be confirmed by more specific analytical methods like DNA-analysis.

In a parallel examination, the top layers of the coating (samples A2 and A1), which are soluble in ethanol, were analysed by GC-MS. This varnish is composed of pre-heated linseed oil, traces of pine resin, and mainly shellac. Diterpenes as dehydroabietic acid (DHA), 7-oxo-DHA, and other oxidation products indicated the presence of pine resin (*Pinaceae*), while shellac was detected by the presence of various shellac acids (see Fig. 4a).[5] The presence of materials commonly used in 18th-century Europe to imitate the appearance of Asian lacquers confirmed that the top layers are not original.[6] To further

5 Heesters, R./van Keulen, H./Roelofs, W. G. T., Natural Resins, Artificially Aged in Steps, in: Mosk, J. A./Tennent, N. H. (eds.), Contributions to Conservation: Research in Conservation at the Netherlands Institute for Cultural Heritage (ICN), London 2002, p. 55–63. Pitthard, V./Wei, S./Miklin-Kniefacz, S./Stanek, S./Griesser, M./Schreiner, M., 2010. Scientific Investigations of Antique Lacquers from a 17th-Century Japanese Ornamental Cabinet, in: Archaeometry, vol. 52(6), 2010, p. 1044–1056. Sutherland, K., Bleached Shellac Picture Varnishes: Characterization and Case Studies, in: Journal of the Institute of Conservation, vol. 33(2), 2010, p. 129–145.

6 Webb, M., Lacquer Technology and Conservation, Oxford 2007.



Sample A1	description	staining*			spot test
layer number		proteins	resins	oils	blood
1	brownish coarse ground layer				+
2	intermediate layer: paper?	+			
3	bright coarse ground layer	+	+	+	+
4	thin intermediate layer				
5	dark lacquer layers (min. 3)				
6	partly (left) red bole				
7	partly (left) thin application of metal				
8	transparent coating		+	+	
* only clear indications are marked as "+"					

Fig. 3. Cross-section of sample A1, before (a, b) and after staining (c, d, e), © Kunsthistorisches Museum Wien/photo by S. Stanek.

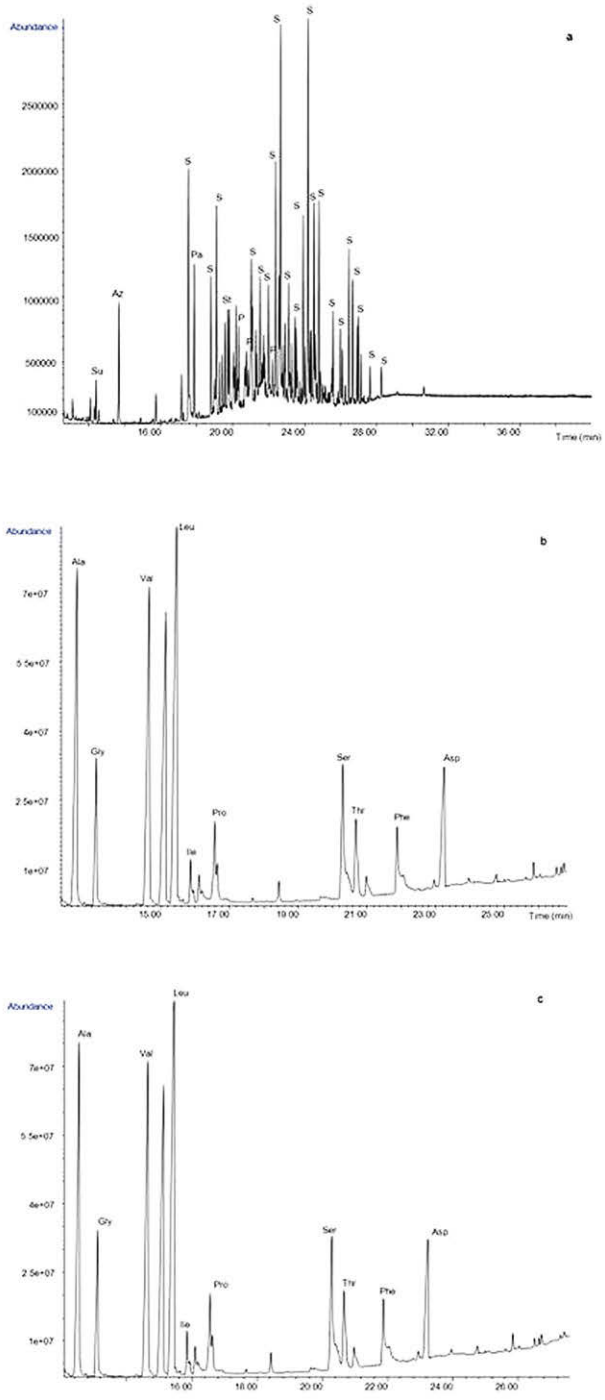


Fig. 4. Total ion chromatograms of sample A1 upper coating (a) and ground layer (b) as well as a pig blood reference standard (c).
Note: fatty acids from linseed oil (Su…suberic acid, Az…azelaic acid, My…myristic acid, Pa…palmitic acid, St…stearic acid); components of shellac (S); diterpenes from pine resin (P); amino acids from pig blood (Ala…alanine, Gly…glycine, Val…valine, Leu…leucine, Ile…isoleucine, Pro…proline, Ser…serine, Thr…threonine, Phe…phenylalanine, Asp…aspartic acid), © Kunsthistorisches Museum Wien/photo by V. Pitthard.

confirm and specify the presence of proteinaceous binding media GC/MS analysis was also performed of the ground layer. As depicted in Fig. 4 b-c, blood, probably pig blood, was confirmed by fitting the profile of amino acids, which would correspond to the old recipes of Chinese makers.

The dark brown layers underneath (sample A4) were likewise initially analysed by GC/MS, however, the method appeared to be unsuitable. Asian lacquer films are insoluble in most common solvents and only a few analytical techniques including pyrolysis are appropriate for their analysis. Pyrolysis-GC/MS is effective because this method can distinguish between pyrolysis products of different lacquers. The species of lacquer tree and the growing environment strongly affect the composition of lacquers. Depending on the tree origin there are three types of lacquers – the species *Rhus vernicifera* which grows in Japan, China and Korea, *Rhus succedanea* from Vietnam and Taiwan and *Melanorrhoea usitata* from Thailand and Burma. They all contain a latex material composed of phenol derivatives, water, plant gum, glycoproteins and laccase enzyme. Compounds of 3-pentadecylcatechol (urushiol), 3-heptadecylcatechol (laccol), and 3-(12-phenyldodecyl) catechol (thitsiol) are the main products of the pyrolysis of *Rhus vernicifera*, *Rhus succedanea* and *Melanorrhoea usitata*, respectively.[7] These monomers are considered as the most characteristic markers to distinguish particular lacquers. The identification of laccol components in the lacquer layer of panel A is discussed later together with panel type C, as both studies produced identical results.

Panel 4.2, type B

Panel 4.2, decorated with flowers and butterflies, was examined to learn whether the flower panels could originally be the reverse sides of the type A panels and if their cross-sections are comparable among each other. Sample B1 was, therefore, taken for cross-section and staining, sample B2 was scraped to analyse the varnish by GC/MS. In addition, a particular transformation of the green pigment in the areas of some leaf designs was the reason for taking sample B3 to detect the nature of the white corrosion crystals. Sample B5 was taken to identify the composition of the dark leaves painted with a bronze appearing pigment (see Fig 5).

The identification of the "bronze" of sample B5 by SEM showed the presence of pigment mainly containing arsenic with an addition of an earth pigment (see Fig. 6). Due to further analysis by polarising microscopy realgar (As_2S_2), some mica and a small amount of a blue pigment (most probably lapis lazuli) could be identified. The white

7 Lu, R./Kamiya, Y./Miyakoshi, T., Applied Analysis of Lacquer Films Based on Pyrolysis-Gas Chromatography/Mass Spectrometry, in: Talanta, vol. 70, 2006, p 370–376.

Fig. 5. Panel 4.2 (B): Sampling spots of samples B1-B3 and B5, © Drottningholm Palace, Stockholm/photo by M. Larson.

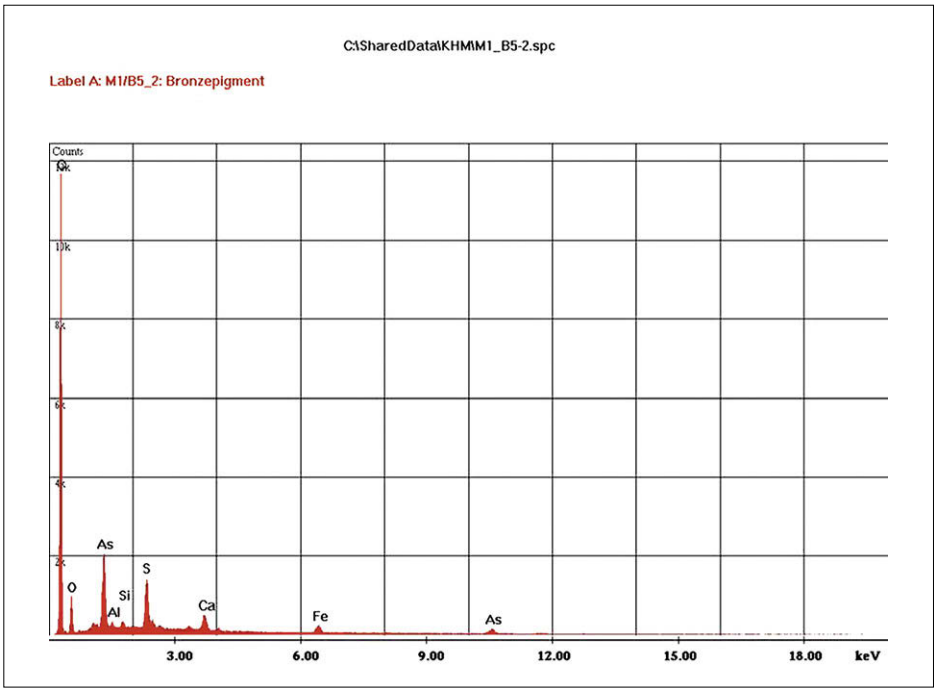


Fig. 6. SEM spectrum of the bronze appearing pigment (sample B5), © Kunsthistorisches Museum Wien/photo by M. Griesser.

crystals on the surface of the green areas sampled (samples B3) could be identified as gypsum particles. The binding medium of the top layers (samples B2 and B3) detected by GC-MS is mostly based on shellac. Linseed oil or tung oil and traces of pine resin were also observed, again confirming later reworking.

Panel 1, type C

Panel 1 of the Yellow Room, depicting a palace scene with female figures within bordures in the upper and lowermost zones, has unidentified water-soluble brown spots on the surface, which were collected together in sample C1. The question was whether the spots are emitted components of the lacquer (e.g. camphor), transformation products of the varnish, or separate deposits. Sample C2 was taken for cross-section and staining, sample C3 to identify the varnish (separated by scraping off; see above) and sample C4 to analyse the Asian lacquer (without the varnish) by Py-GC/MS. Sample C5 was taken to detect the pigment of the bright red lacquer of the bordure and sample C6 to detect the pigment of the dark red, raised lacquer, used as base for the gold decorative elements (in this case, a mountain).

A further question regarded the possibility of detecting any additions (e.g. egg white) to the lacquer, which would facilitate the creation of the relief effects. In sample C1, only a series of dicarboxylic acids, which are the oxidation products of the drying process of oils, were identified. The brown spots on the surface, therefore, most probably originate from the drying process of linseed oil. The presence of oxidised drying oil supports the fact that the material is water soluble. As in the other two panels, blood was detected in the ground layer (sample C2) and the composition of the varnish (sample C3) is based on shellac, linseed oil and pine resin. The lacquer layer (sample C4) was analysed both by techniques of direct pyrolysis and THM-Py-GC/MS. By direct Py-GC/MS analysis, with extracted ion chromatography (*m/z* = 108), the highest intensity peak is nonylphenol (*m/z* = 108, 220); while the *m/z* = 104 extracted ion chromatogram shows the highest intensity peak of octenyl benzene (*m/z* = 91, 188). Those components are the characteristic markers for the laccol of *Rhus succedanea*.[8] As shown in Figure 8 a, in the total ion chromatogram obtained by THM-Py-GC/MS analysis (pyrolysis in the presence of TMAH), the dominant peaks of fatty acid methyl esters indicate a drying oil, while cedar oil was detected by the presence of cedrene and cedrol. Furthermore as shown in Figure 8 b-d, with extracted ion chromatography (*m/z* = 151, 348, 376), the major marker

8 Frade, J. C./Ribeiro, M. I./Graça, J./Rodrigues, J., Applying Pyrolysis-Gas Chromatography/Mass Spectrometry to the Identification of Oriental Lacquers: Study of Two Lacquered Shields, in: Anal Bioanal Chem, vol. 395, 2009, p. 2167–2174.

Fig. 7. Panel 1 (C): Sampling spots of samples C1-C6, © Drottningholm Palace, Stockholm/photo by M. Larson.

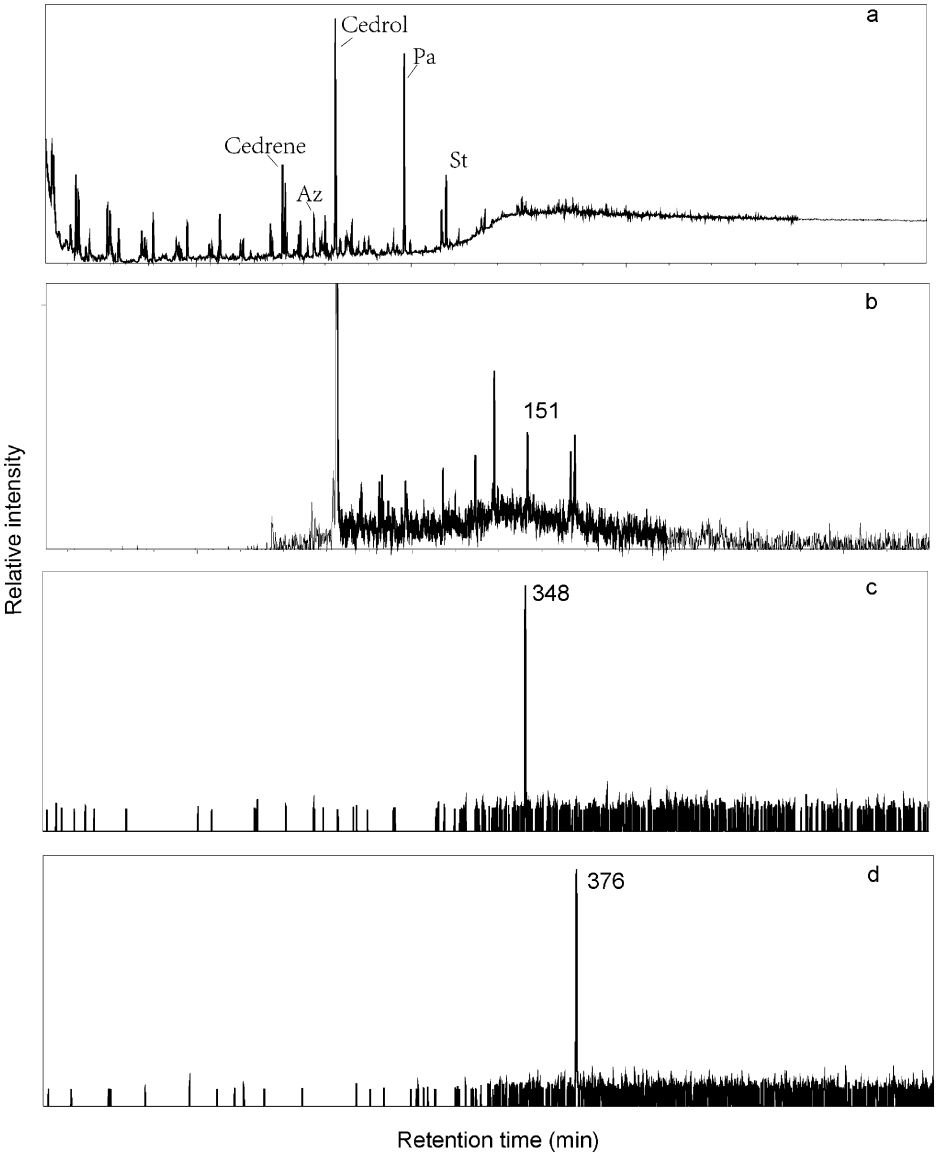


Fig. 8. Pyrograms of sample C4 obtained with THM-Py-GC/MS analysis. Total ion pyrogram (a); the extracted ion pyrogram of m/z = 151 (b); the extracted ion pyrogram of m/z = 348 (c); the extracted ion pyrogram of m/z = 376 (d).
Note: Az – azelaic acid, Pa – palmitic acid, St – stearic acid as their methyl esters, © Institute of Natural Sciences and Technology in Art, Academy of Fine Arts/photo by S. Wei.

compound of laccol (3-heptadecylcatechol) was detected.[9] In addition, the oxidation product of laccol (methyl 10-(2,3-demethoxyphenyl) decanoate, *m/z* = 322) illustrates the ageing process of the lacquer.[10]

CONCLUSION

The scientific investigations carried out on the selected set of samples helped to answer questions concerning the painting technique and surface deterioration of the three different types of panels studied. Furthermore, they proved that although the stratigraphy of the single panels is rather different, the organic material used is generally quite similar. The composition of the uppermost coating indicates later reworking most probably undertaken in situ on the surface of all panels to unify the appearance of the cabinets at the Chinese Pavilion.

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9 Le Hô, A.-S./Regert, M./Marescot, O./Duhamel, C./Langlois, J./Miyakoshi, T./Genty, C./Sablier, M., Molecular Criteria for Discriminating Museum Asian Lacquerware from Different Vegetal Origins by Pyrolysis Gas Chromatography/Mass Spectrometry, in: Analytica Chimica Acta, vol. 710, 2012, p. 9–16.

10 Schilling, M. R., Anacard marker compounds, Recent Advances In Characterizing Asian Lacquers (RAdiCAL) workshop, 22–26 October 2012, Getty Conservation Institute, Los Angeles 2012.

Jütte, W., Mikrochemischer Nachweis natürlicher Harze mit Alkannafarbstoffen in Querschliffen von Malschichtproben, in: Vendl, A./Pichler, B./Weber, J./Erlach, R./Banik, G. (eds.), Wiener Berichte über Naturwissenschaft in der Kunst 6/7/8, Wien 1989/90/91, p. 85–93.

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Panel type	Panel description	Sample No.	Sample location	Analytical methods
A	Panel 10.5 decorated with landscape, pagoda, pavilions and palms (105,5 x 57 cm)	A1	Right edge of the panel/ multilayer structure including wood	Cross-section, microchemical tests, GC/MS
		A2	Right edge of the panel/ uppermost varnish	GC/MS
		A4	Right edge of the panel/ lacquer layer without upper varnish	THM-Py-GC/MS
B	Panel 4.2 decorated with flowers and butterflies (107 x 59 cm)	B1	Left edge of the panel/ multilayer structure	Cross-section
		B2	Left edge of the panel/ varnish	GC/MS
		B3	Middle of the panel/ corrosion or pigment	SEM, GC/MS
		B5	Middle of the panel/ pigment	SEM
C	Panel 1 decorated with a palace scene (213,5 x 59 cm)	C1	Upper part of the panel/ brown points on the varnish	Microchemical tests, GC/MS
		C2	Left edge of the panel/ multilayer structure including wood	Cross-section, microchemical tests, GC/MS
		C3	Left edge of the panel/ varnish	GC/MS
		C4	Left edge of the panel/ lacquer without varnish	THM-Py-GC/MS
		C5	Left bottom edge of the panel/light red lacquer	SEM, GC/MS
		C6	Right bottom edge of the panel/dark red lacquer	GC/MS

Table 1 List of objects and locations of the sampling on the lacquer panels.

Method	Instrumentations	Parameters/conditions
Optical microscopy (OM)	Zeiss Axioplan 2 microscope fitted with a Sony Power HAD video system.	Incident light, 100 W halogen lamp and 100 W high pressure mercury lamp for UV light (UV filter 365 nm) and blue light (filter 450–490 nm) use.
Scanning electron microscopy with energy dispersive X-ray detection (SEM-EDX)	FEI Quanta 200 F with EDAX X-ray detection system	High vacuum, acceleration voltage 20 kV
Gas chroma-tography-mass spectrometry (GC-MS)	6890N gas chromatograph connected to a quadrupole mass spectrometer, model 5973N (both Agilent Technologies, USA)	Transesterification with a 0.2M methanolic solution of Meth-Prep II (30 µL) and a solvent mixture (methanol:toluene, 1:2; 70 µL), DB–5 MS [poly (5% phenyl–95% methylsiloxane), J&W, USA] capillary column (0.25 mm x 0.25 µm x 30 m), the temperature programme from 50 °C (1 min) to 320 °C (12 min) at 10 °C.min^{-1} for lipids and resins. Hydrolysis with 6 M hydrochloric acid (HCl, 100 µL) at105 °C for 24 hours, followed by silylation with a pyridine – pyridine hydrochloride mixture (15 µL) and a silylation reagent (MTBSTFA, 30 µL) at 60 °C for 1 h. Temperature programme (80 °C (1 min) to 280 °C (1 min) at 6 °C.min^{-1}) for proteins.
Thermal assisted hydrolysis and methylation pyrolysis (THM-Py-GC/MS)	double-shot pyrolyzer PY–2020iD (Frontier Lab, Japan) attached to a gas chromatograph and mass spectrometer GC/MS-QP2010 Plus (Shimadzu, Japan)	3 µL of 25% aqueous TMAH (Aldrich, USA). Pyrolysis was performed at 500 °C. Ultra alloy [5% diphenyl–95% dimethyl siloxane, Shimadzu, Japan] capillary column (0.25 mm x 0.25 µm x 30 m), temperature programme (40 °C (1 min) to 280 °C (20 min) at 10 °C.min^{-1})

Table 2 Experimental parameters of analyses

CHARLES J. MOORE, MELISSA H. CARR, MARIA JOÃO PETISCA

Inspired by Schönbrunn: 18th Century Chinese Lacquer Panels in an American Beaux-Arts Mansion

ABSTRACT

One of eleven historic house museums administered by the Preservation Society of Newport County in Newport, RI, The Elms was designed in 1899 by the Philadelphia architect Horace Trumbauer for Edward J. Berwind and completed in 1901. A grand building in the Gilded Age tradition, The Elms was modelled after the Chateâu d'Asnières-sur-Seine, a quintessential 18th-century French country house outside Paris. For the interiors, Trumbauer hired the Parisian firm of Jules Allard and Sons of Paris, which had designed interiors for the extended Vanderbilt family and other notable clients in New York and Newport. In the northwest corner of The Elms is an oak-panelled Breakfast Room in the French Regency style with Chinoiserie detailing, including four very large black and gold mid–18th-century Chinese export lacquer panels and three overdoor panels, similarly decorated. This room at The Elms harks back to the days of the classical tastes of the early 18th century and the lacquer panels to the most exotic, mysterious, and costly material of the day. The likely scenario of the long life of the panels included fabrication in China in the mid–18th century, installation and decline in a Parisian townhouse, acquisition by Allard, restoration and installation at The Elms, and another period of accelerated decline due to environmental conditions, which put the existence of the panels at risk. Planning and funding initiatives led to a campaign of research, the development of a preservation plan, and the actual conservation treatment of the lacquer panels. A large space in the basement of the Elms, presented in the "Servant Life" tour as the Laundry Drying Room, was adapted for the treatment of the panels without losing the interpretive value of the original use of the space. "Servant Life" visitors are now welcomed into a corner of the room where they can question the conservators at work, view project documentation, and still see the features that made it a Drying Room. The treatment plan called for securing lifting lacquer, removing unsightly modern repairs, removing surface wax and an upper layer of darkened varnish, and the selective restoration of missing or damaged decoration. Treatment began in 2011 and was completed in 2013. The international flavour of the site and its context – sited in the US; building design, interiors and furnishings from France; decorated with 18th century Chinese export panels – is similarly reflected in the blend

of project consultants and conservators, who hail from Portugal, Canada, Austria, and Boston. This paper addresses the development of an important architectural conservation treatment and describes project priority, the funding process, public education, marketing, and the process as a catalyst for climate mitigation. The project continues to serve the Preservation Society as a model for institutional long-range planning.

INTRODUCTION

The Preservation Society of Newport County[1] was founded in 1945 for the purpose of preserving Hunter House, built in the 1740s, whose panelling, it was feared, was in danger of being "collected" by a museum. Almost 75 years later the Preservation Society owns ten properties which reflect a broad range of historic architecture and welcomes over 800,000 visitors a year. One of the houses is The Elms.

In 1898, coal magnate Edward Berwind engaged Philadelphia architect Horace Trumbauer to design a summer residence modelled after the Chateâu d'Asnières (ca. 1750) outside Paris, France. The interiors and furnishings were designed by Allard and Sons of Paris and were the setting for the Berwind's collection of Renaissance ceramics, eighteenth century French and Venetian paintings, and Oriental jades. Construction of The Elms was completed in 1901 at a cost of approximately $ 1.4 million. The Berwind family owned The Elms until 1962, at which time the house and most of its contents were sold at public auction, with the building slated for demolition and a shopping centre to be built on the site. The Preservation Society prevailed upon the buyer and purchased the house, stepping in to preserve it much as it had done for Hunter House decades before. It was furnished with loan objects and opened it to the public; its beautiful rooms and grounds now attract over 125,000 visitors a year. The Elms remains a collaboration of client, architect, and interior designer that produced a remarkable work of architecture and a quintessential expression of the Gilded Age. Its loss would have been a tragedy.

PROJECT PLANNING AND DOCUMENTATION

In 1996 The Elms was designated a National Historic Landmark.[2] In 2000, a historic structure report[3] was prepared which provided detailed information about the history

1 The Preservation Society of Newport County, 424 Bellevue Avenue, Newport, RI 02840, USA, www.newportmansions.org.

2 A designation awarded by the United States National Park Service for sites with national-level historical significance.

3 For a thorough description of the house and its needs, see: Baker, M. J., The Elms Historic Structure Report Mesick/Cohen/Wilson/Baker Architects, 324 Broadway, Albany, NY 12207, USA 2000.

Fig. 1. The Elms, west elevation, © PSNC/photo by A. Carneiro.

and condition of the building. In 2003, the Preservation Society undertook a general conservation assessment of the interior architecture and collections of all of its houses.[4] The results of that assessment were incorporated into a "Long-range Preservation Plan" that created a framework for identifying and prioritising projects related to the interior architecture and collections of all the Preservation Society 10 historic house museums.

At The Elms, the Long-range Preservation Plan identified a group of black and gold Asian lacquer panels as having the highest conservation priority. There are three large panels and three overdoors that were fabricated in China and exported to Europe in the mid–18th century for use, it is believed, in a Parisian townhouse.[5] They were likely acquired as architectural salvage by Allard, and ultimately incorporated into his design for the Breakfast Room at The Elms. The design required a fourth large panel, which Allard had fabricated specifically for the site.

4 Institute of Museum and Library Services, US government funding entity.

5 Miller, P., Notes on Provenance, unpublished report for the Preservation Society of Newport County, Newport 2008.

Fig. 2. The Breakfast Room, 1901, © PSNC archival photo.

Though viewed at a distance in an architectural context – the visitors see the whole room, not so much the objects in it – there are beautiful and charming passages of work on the panels.

The figures are delicate and the rendering of architectural surfaces and nature is simple and elegant. There is a high level of precision in much of the work. These beautiful details will eventually be exhibited on the Preservation Society's website. The three large 18th century panels are approximately 207 cm wide and 300 cm high. Each of them was initially three separate panels – perhaps from a screen – glued together by Allard. The large panels are in pairs, with the south matching the north and Allard's 1895 west panel matching the 18th century east panel. The central designs are surrounded by cartouches featuring typical landscapes, springtime motifs, and guardian lions. The overdoor panels are 165 cm wide and 115 cm high. They are decorated more generically with rocks, plants, and birds, and are in fact composite decoration: Asian lacquer fragments with infill using European methods.

This use of large lacquer wall panels is a twentieth-century reprise of the appreciation of this material in Europe in the seventeenth and eighteenth centuries.[6] Little remains *in*

6 See the studies conducted by: Miklin-Kniefacz, S. (ed.), Zur Restaurierung der Vieux-laque-Tafeln in

Fig. 3. Detail of 18th-century Chinese export lacquer panel – gold powder on black lacquer, © PSNC/photo by C. Moore.

situ in France, but Asian lacquer panels have been studied and treated in their original 18th-century architectural installations elsewhere, such as at Schönbrunn Palace and Palais Esterházy in Vienna, in the Chinese Pavilion at Drottningholm in Sweden, and also at sites in Germany and Italy.[7] The Elms installation is thought to be the only example of its kind in the United States.

Schönbrunn: Grundlagen und Vorarbeiten, Wissenschaftliche Reihe Schönbrunn, vol. 1, Wien 1995. Miklin-Kniefacz, S. The conservation and restoration treatment of the Chinese lacquered panels of the "Japanese Room" of the Palais Esterházy, ICOM-CC: 12th Triennial Meeting, Lyon, London 1999, p. 847–851. Cederlund, J., A Chinese Pavilion in Sweden – a lecture presented at the Newport Symposium, The Preservation Society of Newport County, Newport, RI, USA 2009. Hagedorn, B./Breidenstein, I., The Indian cabinet in Schloss Falkenlust: a technical study, in: Budden, S./Halahan, F. (eds.), Lacquerwork and Japanning, Postprints of the United Kingdom Institute for Conservation (UKIC) Conference, London 1994, p. 18–26.

7 Marianne Webb, objects conservator, lacquer specialist, author of *Lacquer Technology and Conservation*. Webb Conservation Services, 7941 Redrooffs Road, Halfmoon Bay, BC V0N 1Y1 Canada.

FUNDING AND PLANNING

The Long-Range Plan was a tool for establishing clear and measured priorities. Those priorities engendered stakeholder interest of the best kind: seed money. For example, members of The Elms House Committee, a volunteer support group, arranged funding for consultation with a conservator with extensive experience in Asian lacquer who assessed the importance and condition of the panels and prepared a report.[8]

Using that report, the Preservation Society applied for and won an Architectural Planning Grant for the development of a treatment plan.[9] With the help of a consulting conservator[10], a close inspection of the panels was undertaken including photography, condition reporting, and solvent and adhesive tests. Another important component of the planning phase was a trip to Vienna (February 18–20, 2008) to consult at length with the conservator who had treated the Vieux-Laque-Room at Schönbrunn Palace and lacquer panels in a salon of Palais Esterházy[11]. Both locations have their original 18th-century Chinese lacquer panels. At Schönbrunn Palace the Head of Research and Documentation[12] explained why the panels were significant in that context, and the Managing Director[13] discussed climate mitigation for the long-term preservation of the panels as well as the house as a whole. These detailed discussions about materials, conservation, costs, and treatment time as well the more holistic vision provided by the Schönbrunn staff was essential for the development of a treatment implementation plan as well as the long-term preservation of the panels at The Elms.

As part of the planning initiative, a series of analytical studies were conducted in order to better understand the nature of the damaged lacquer, the history and materials of repairs, and to help develop the best approach regarding conservation treatment, including:

- Examination in visible specular and raking light emphasized obvious surface damage and topography, such as cupping boards, cracks, splitting lacquer, and degraded varnish.
- UV-light inspection and photography helped expose previous campaigns of restoration.

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8 Webb, M., The Elms lacquer panel room: examination report and conservation recommendations, unpublished report for the Preservation Society of Newport County, Newport 2005.

9 The Getty Foundation, 1200 Getty Center Drive, Suite 800, Los Angeles, California 90049–1685 USA.

10 Melissa Carr, Masterwork Conservation, 69 Webcowet Road, Arlington, MA 02474, USA.

11 Silvia Miklin-Kniefacz, Restaurierung Metall/Urushi, Bernardgasse 4/1, A–1070 Vienna, Austria.

12 Dr. Elfriede Iby, Head of Research and Documentation, Schloß Schönbrunn Kultur- und Betriebsges.m.b.H..

13 Dr. Wolfgang Kippes, former Managing Director, Schloß Schönbrunn Kultur- und Betriebsges.m.b.H..

Fig. 4. Documentation of panel condition by M. Carr and A. Schopfer, © PSNC/photo by C. Moore.

- Wood ID identified a species of *Podocarpus* (spp.), Chinese brown pine.[14]
- X-radiography revealed structural information regarding the construction of the panels – specifically the arrangement of boards and the use of bamboo splints and the mitred pieces of wood that cap the smaller panel components at the top and bottom.[15]
- Analysis of certain samples of lacquer and coatings by pyrolysis-gas chromatography/mass spectrometry (PYI-GC/MS) was performed by the Getty Conservation Institute identifying various components of Asian lacquer such as urushiol, laccol, and drying oils as well as materials of the European methods such as shellac, copal, and pine resin.[16]
- Portable X-ray fluorescence (XRF) was used to identify the red pigment on the antique panels as iron oxide and that on the western panel and certain campaigns of restoration as vermillion.[17]
- Scanning electron microscopy/energy dispersive X-ray spectroscopy (SEM/EDS)was undertaken at Williamstown Art Conservation Center to characterize the different campaigns of gold on the perimeter, where the original is gold with a trace of silver and the two overlying restorations are copper and lead, and pure gold.[18]
- Cross-section microscopy was very important to this project. Visible light microscopy can reveal valuable information about layers, colour, general texture, and particle size. Under ultraviolet light the presence or absence of fluorescence can suggest the use of certain materials, but it is often most valuable for revealing the subtle differences between layers that are not apparent in visible light.[19] Further, UV light combined with raking visible light will light up metal layers quite nicely. When partnered with analysis such as PY-GC/MS, the ordering of the sample as identified by the microscopy can be analyzed layer by layer. This can provide an incredible wealth of information, both from the perspectives of treatment and educational one.[20]

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14 Arlen Heginbotham, Associate Conservator of Decorative Arts and Sculpture at the J. Paul Getty Museum.

15 Baker Testing Services, specs. The Baker Testing technicians took 30-second exposures of the large panel in six locations using an Andrex 220KV portable X-ray camera, at 120 Kilovolts, 5 milliamp, and 6 foot source to film distance. Fine grain industrial X-ray film 14" x 17" was used.

16 Michael Schilling, Senior Scientist and Head of the Organic Materials Research Lab at the Getty Conservation Institute. For more elaboration regarding lacquer materials, see: Webb, M., The Elms lacquer panel room: examination report and conservation recommendations, unpublished report for the Preservation Society of Newport County, Newport 2005.

17 Bruker Elemental, portable XRF, Tracer III-SD, www.bruker-axs.com.

18 Williamstown Art Conservation Center, 227 South Street, Williamstown, MA 01267 USA.

19 Cross-section work done in-house using a Leica DM-LM vis/uv trinocular microscope w/darkfield objectives.

20 For details on the analytical process, see: Getty Conservation Institute, Characterization of Asian and European Lacquers, http://www.getty.edu/conservation/our_projects/science/lacquers/index.html, ac-

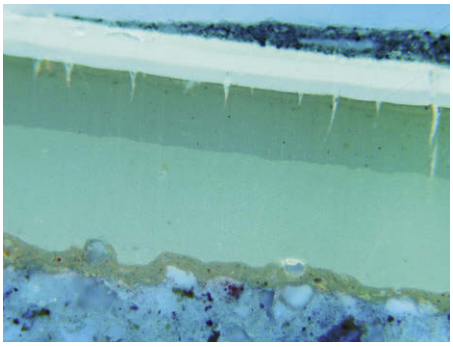

Fig. 5. Typical condition of lacquer on overdoors, © PSNC/photo by M. Carr.

Fig. 6. X-section photomicrograph (200x – UV light) of 18th-century Chinese export lacquer. A coarse ground layer, a sealer, two layers of black lacquer with subsequent western varnishes and overpaint. Note microfissuring caused by light in top lacquer layer, © PSNC/photo by C. Moore.

Of particular note was the microscopic comparison and analysis of the several programmes of Asian lacquer found on the panels. This included:

- Original lacquer on the large 18th-century panels and overdoors
- Lacquer used to make the large 19th-century panel provided by Allard
- Lacquer used for early 20th-century repairs to the large 18th -century panels

The original 18th-century lacquer work was done in China and was found to be formulated from the sap of the tree *Toxicodendron succedaneum*, found primarily in Vietnam. The 19th-century lacquer panel provided by Allard to complete the set was probably prepared in Paris and was made using lacquer derived from *Toxicodendron vernicifluum*, found in Japan, China, and Korea and known as *urushi*, *qi*, and *otchil* respectively. The 20th-century lacquer repairs were most likely done after the panels were installed in The Elms, in response to severe splitting caused by central heating. These repairs were also made using used *urushi* but have a different stratigraphy.

The 18th-century lacquer panels suffered from all of the ills one would expect considering their life: shipment from China, an unknown period of installation/ use in the mid–18th century with attendant degradation and subsequent repair, a period of decline

cessed January 20th, 2014.

to the point of salvage, with storage, restoration, reinstallation and yet another period of degradation. This includes deformation and cracking of support, detaching lacquer, light and water damage, damage due to high and fluctuating RH, and the idiosyncrasies of several campaigns of restoration including applications of varnish.

It is interesting to note that when the panels were removed from the wall, it was discovered that they were full thickness with undecorated backs. The backs were coated with lacquer, but it was not black or highly polished. This makes it unlikely that the panels originated as screens and leaves unanswered the question of what was their original intended use; perhaps they were custom-made for architectural purposes.[21]

TREATMENT

The actual treatment of the panels was funded by grants from the government and several private sources[22], which allowed the hiring of a full time contract conservator.[23] The project began in 2011 and was an internationally staffed indeed: a Canadian conservator performed the initial condition assessment, an American conservator performed the initial cleaning tests, an Austrian conservator provided essential guidance on scope and budget, and a Portuguese conservator implemented the treatment. This reflects and parallels an international interest in lacquer conservation and technology.[24]

The interpretive target was the period of Allard's 1901 installation, and repairs previous to or contemporary with Allard's installation were left in place. Once discovered, important early 20th century Asian lacquer repairs that followed the installation were also respected.

After 100 years in The Elms, the lacquer panels had developed an uneasy equilibrium with the interior climate. It made the most sense to treat them somewhere in the house itself rather than disturb that relationship by moving them elsewhere. Fortunately, the Laundry Drying Room in the basement was under-interpreted/ utilized. After some in-

21 For information on the quantity of imported lacquer screens and panels see: Sargentson, C., Merchants and luxury markets: the marchands merciers of eighteenth century Paris, J. Paul Getty Museum, Malibu 1996. Impey, O., Chinoiserie: the impact of oriental styles on western art and decoration, New York 1977.

22 IMLS Conservation Project Support Grant, www.imls.gov.

23 Maria João Petisca, Rua Maria Vela, Bloca A, N2, 3E, 6300–570 Guarda, Portugal johnnypetisca@gmail.com.

24 The international popularity of Asian lacquer conservation and technology is reflected by recent conferences, Buffalo (Asian Lacquer Symposium, 2013), and Vienna (The Conservation of East Asian Cabinets in Imperial Residences, 2013) preceded by the important conference in London (Crossing Borders-The Conservation, Science and Material Culture of East Asian Lacquer, 2009).

Fig. 7. Rolling table with sliding beams allows clamping anywhere on the surface. Note setup with conservator M.J. Petisca for gluing in the middle of the wide panels, © PSNC/photo by C. Moore.

terdepartmental discussion, it was agreed that the treatment of the lacquer panels in that space would provide an opportunity to present dynamic new material to the visiting public as well as continue to show the room and its original purpose.

The treatment, in short, consisted of securing the lifting lacquer[25], removing the most recent, poorly done fills, removing some of the western varnishes applied over the original Asian lacquer[26], replacing the missing decoration[27], and re-varnishing the panels with a reversible resin[28] to produce a protected, uniform result.

25 Thick delaminating lacquer was reattached with #192 Bloom gram strength hide glue. Recipe: 28.3 g dry hide glue to 46 g water (with 1% LMW polyvinyl alcohol added to theoretically improve long-term cohesion).

26 Pemulen gel recipe: 100 g Pemulen 2TR, 1.5 g triethanol amine, 4 ml 10% NaOH to desired pH, in this case 8.5. Add 100 ml isopropanol. The Allard panel required the addition of 10 ml mineral spirits.

27 Modostuc tinted paste fillers. Kolner InstaClay coloured synthetic gilders clay, Golden Artists Acrylics and Airbrush Colours. Gold leaf, gold powder, mica pigments.

28 RegalRez 1126, 15% in mineral spirits.

The details of the treatment will be presented at the Preservation Society's website but several features are worth noting here. A gluing table was designed to allow the conservators to work over the middle of the two-meter wide panels and apply pressure at any point by means of clamps positioned between the panels and moveable beams. Any point on the panels could be secured using this arrangement.

On a more technical level, and confirming the utility of cross-section microscopy, it revealed that the purely solvent-based varnish removal was too aggressive and was eroding a historic varnish layer that was to be retained. Reformulation of the solvent blend in a gel form was found to be effective and a second round of microscopy confirmed that the varnish layer was being left intact.[29]

EDUCATION/OUTREACH

The project has been a constant source of material to present to the Preservation Society's various stakeholders, which include staff, members, other supporters, and the greater conservation community, including conservators from the Palace Museum in Beijing. Visits have been made by high school students taking a museum studies course, graduate historic preservation students from a regional university, as well as behind-the-scenes presentations for Preservation Society members and supporters. Most importantly, however, the project became a part of the Servant Life Tour. These groups regularly came into the workspace and were briefly addressed by one of the practitioners. The focus of the short presentation revolved around the antique nature of the Chinese export panels; the qualities of true Asian lacquer – including the similarities to poison ivy, always popular; the character of the gold powder decoration; the time-intensive preservation process; and a nod to our funders. We also answered specific questions if asked. Visitors often considered this the best part of the tour.

The project provided an important interpretive opportunity where the conservators could demonstrate to the visiting public the kind of complex work that is necessary to save the Preservation Society's houses and collections for future generations. This is an "Aha!" moment for many of the visitors when they realize this is just one project and there are nine other museum houses, each with its own needs. By April 1st, 2013, almost 32,000 people visited the work in progress.

29 For helpful information see http://pemulentr2.pbworks.com/w/page/15636416/FrontPage.

Fig. 8. Visitors taking the Servant Life Tour receive a short description of the project, © PSNC/ photo by M. J. Petisca.

PRESERVING THE WORK

A specific investigation of the climate in the Breakfast Room was undertaken in September, 2006 concurrently with the initial study of the lacquer panels.[30] There is no climate control in the house and relative humidity (RH) is often high (well over 70%) in the summer and fall with extreme fluctuations. The decision was made to treat the Breakfast Room as a micro climate and to address the RH in that room only. A dehumidifier was installed in the basement and dry air was blown into the duct supplying the room.[31] As it mixed with the ambient humid air, it lowered the RH overall. Monitoring with data loggers showed a 10–15% reduction was achieved relative to the Dining Room next door.

30 Conrad, E., The Elms Breakfast Room Urushi Wall Panels and Japanned Overdoors: An Environmental Assessment. Landmark Facilities Group, Inc., unpublished report, Newport 2006.

31 Hi-E Dry Model 100 dehumidifier, Therma-Stor LLC, Madison WI, USA, www.thermastor.com.

Fig. 9. The Breakfast Room lacquer panels after treatment, © PSNC/photo by G. Ashworth.

Going forward, a proposal has been made to combine the Dining Room, which contains an important set of Venetian paintings, with the Breakfast Room and its lacquer panels, into a single zone or microclimate. The system would again supply dehumidified air to mix with ambient conditions in the two rooms to achieve reductions in RH overall. Some cooling would be provided as well to counteract the heat that can be part of the dehumidification process. A climate without the high levels of RH and rapid fluctuations during the humid months would effectively prolong the lives of the now-conserved lacquer panels as well as the Venetian paintings.

CONCLUSION

The success of this major conservation initiative stands on its merits. The project was identified as a priority, initial funds were raised to begin the documentation process, and successive grants funded treatment development and implementation. The Preservation Society has shown that presenting the active preservation process to visitors is as marketable as a house tour; other objects will replace the lacquer panels in the Laundry Drying Room and the space and its activities will remain an integral part of the interpretation of The Elms.

In addition, the development of environmental modifications to address the long-term preservation needs of the lacquer panels will benefit other objects within the house and that success, by extension, will be recommended for other Preservation Society sites and their collections. The education and outreach programmes associated with the project will translate readily to other projects.

Most importantly, the planning, funding and implementation of this initiative has become a model for the Preservation Society. The multi-year process of going from establishing priority to completion has developed institutional skills and generated institutional and professional support for other projects of this scale. Ultimately, the success of the project may well be judged by how effectively the planning tools and organisational momentum are retained and redirected.

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JAN DORSCHEID, PAUL VAN DUIN, HENK VAN KEULEN

The Late 17th Century Lacquer Room from the Palace of the Stadtholder in Leeuwarden, Preserved in the Rijksmuseum Amsterdam

ABSTRACT

The Leeuwarden Lacquer Room was made for the Palace of the Frisian Stadtholder in Leeuwarden in 1695 and is one of the oldest surviving rooms of its kind. It was created for the private apartment of Henrietta Amalia of Anhalt-Dessau, the spouse of the Frisian Stadtholder Henry Casimir II of Nassau-Dietz. It has walls lined with Chinese coromandel lacquer panels above a wainscoting with carved and gilded ornaments. The ceiling painting is surrounded by a carved and gilded architrave above the lacquer panelling. Henrietta Amalia had received three Chinese coromandel lacquer folding-screens from her husband, each with twelve panels and two of which formed a nearly identical pair. Perfectly in tune with the fashion of time, she had these screens split and integrated into the wall panelling of one of her private chambers in her apartment. Henrietta Amalia filled the Lacquer Room with Asian porcelain as well as with European treasures. Many other European palaces had these small chambers of curiosities where European and Asian art was combined. The Leeuwarden Lacquer Room is one of the earliest surviving examples. The Lacquer Room from Leeuwarden has undergone four alterations in its lay-out, one in Leeuwarden and three at the Rijksmuseum – alterations which were usually accompanied by various treatments. A study of the historic installations and documentary evidence was carried out in 2003. Recently this was combined with art-historical and technical research. The technical research focused on the coromandel lacquer and the analysis of the original materials in each layer of the different screens as well as the identification of past modifications made to the Lacquer Room. The Asian materials and manufacturing techniques were analysed for their binding media and the build-up of their layers, providing new insights into this as yet little researched technique. A proposal for conservation was developed, based on an understanding of the materials, their varying degrees of deterioration and how these correlate with the present condition and patterns of damage. A flexible mounting system was devised. Together, these technical studies and the historic evidence provide a foundation of information that is essential for planning the reinstallation of

Fig. 1. Lacquer Room made for Henriette Amalia van Anhalt-Dessau from the Palace of the Stadtholder in Leeuwarden, as installed in the Rijksmuseum before 2004. The walls are covered with Chinese coromandel lacquer panels above a wainscoting of carved and gilt lime wood. The ceiling painting is attributed to Elias van Nijmegen. L. 500 cm; w. 300 cm, h. 347,5 cm. Leeuwarden, ca. 1695, © Rijksmuseum.

the Lacquer Room in the Rijksmuseum, scheduled for the end of 2014, thereby doing justice to this wonderful object and its complex history.

INTRODUCTION

The Lacquer Room with its essential components was made in 1695 in the Stadtholders' Palace in Leeuwarden in the Netherlands.[1] It is the oldest surviving *coromandel* lacquer

1 Haan, J. d., The Leeuwarden Lacquer Room: a Royal Puzzle, in: The Rijksmuseum Bulletin, vol. 2, 2009, p. 173.

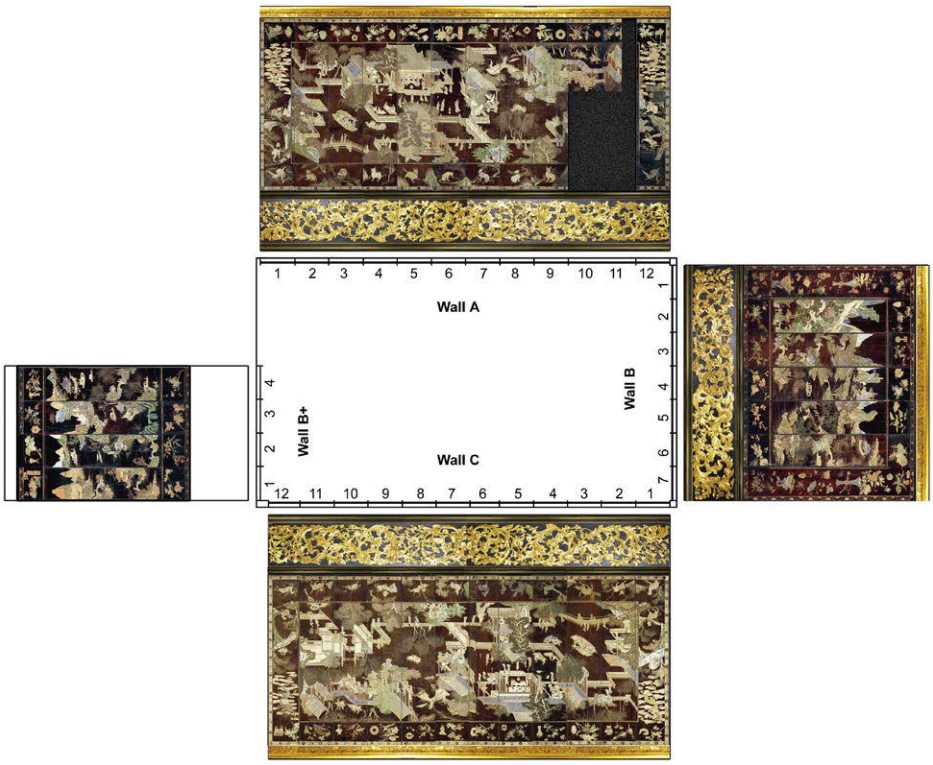


Fig. 2. Ground plan of the Lacquer Room with corresponding panelled walls, © Rijksmuseum/ photo by J. Dorscheid.

room.[2] The room consists of wainscoting over which the walls are lined with *coromandel* lacquer screens, crowned with a cornice and a ceiling painting.

The walls are nearly entirely panelled with Chinese *coromandel* lacquerware. They measure just over three meters in height, the room itself is about three meters wide and five meters long. Thirty-three whole panels and fragments of two additional panels were used from three twelve-panelled Chinese folding screens. The two long walls both hold twelve panels or fragments of such. They show two nearly identical palace scenes representing women of the court. The remaining eleven panels (formerly twelve panels) of the third screen show depictions of the landscape from the "West Lake" in the central field and are divided over the two shorter walls.[3]

2 Campen, J. v., 'Reduced to a heap of monstruous shivers and splinters' – Some Notes on Cormandel Lacquer in Europe in the 17th and 18th Centuries, in: The Rijksmuseum Bulletin, vol. 2, 2009, p. 140.

3 Kessel, W. d./Dhont, G., Coromandel : Lacquer Screens, Ghent 2002, p. 33, 70.

Fig. 3. Reverse of a section of a panel showing the original construction wood including remains of bamboo dowels; a rough recessed area probably dating from the first installation around 1695; the thin oak support frame; the pencilled date 1808 (the installation of the panelling in the adjacent room in Leeuwarden); and pine strips over cracks to reinforce the panels dating from the conservation in 1985 in the Rijksmuseum, © Rijksmuseum.

CONSTRUCTION AND MATERIALS

The individual panels of the folding screens were constructed with two or three wooden planks, joined with pegs and reinforced with cleats to either end.

A uniform black lacquer was applied on top of a multilayered foundation. The motifs were carved out of the finished black lacquer surface and these recesses were painted in a variety of colours. The wainscoting is made of carved and gilt lime wood with gilt Baroque ornamentation such as strapwork and acanthus leaves. The cornice is made of oak planks with a cast gesso ground and gold leaf finish on a red bole. It shows representations of apples in curved cartouches. The ceiling painting was executed in oil on canvas and consists of three parts. It is dominated by the colours brownish-pink, gold and silver.[4]

4 Dorscheid, J., The Coromandel-Lacquer Room from the late 17th century in the collection of the Rijksmuseum in Amsterdam – History, Condition and Proposal for Reinstallation, Diploma Thesis University of Applied Science Potsdam 2012, p. 4, 45, 70.

HISTORICAL BACKGROUND

Enhanced by the expanding trading routes of the East Indian Companies and subsequent increased availability, the fashion for Asian arts and crafts reached its peak in Europe in the 17th century as it was increasingly introduced at the courts of Europe.[5] These precious imports merged with the design principles of the time to a new unity – to enhance and frame its values in an adequate setting. Besides being used as applications on furniture and other decorative items, split and transferred lacquer panels decorated many of the so-called "chambers of curiosities".[6]

Chinese coromandel lacquer and its trade

Coromandel lacquer is a relatively young Asian lacquer technique. When labour-laws changed in China under Emperor Kangxi (1654 – 1722) of the Qing-Dynasty and arts and crafts were more readily available for a larger society, *coromandel* lacquer was developed in China as a substitute for the rather expensive lacquers with mother-of-pearl inlay common at the court. *coromandel* lacquer is mostly used for decorating folding screens. The fronts have a central scene with a surrounding border and depictions of Chinese legends and symbols.[7] They were presents for high officials and were intended to convey good wishes.[8] Due to its contrast of mostly lustrous dark surfaces and vivid colours *coromandel* lacquer became popular in Europe and increasingly integrated into fashionable interiors.[9] Subsequently the quantity of shipped and traded goods multiplied speedily.[10] The precious black lacquer screens with carved out and coloured figures

5 Piert-Borgers, B., Asiatische Lackarbeiten an französischen Möbeln, Kühlenthal, M. (ed.), Japanische und Europäische Lackarbeiten – Rezeption, Adaption, Restaurierung, München 2000, p. 480.

6 Bresinsky, H., Montierter Lack: französische Möbel des 18. Jahrhunderts hergestellt unter Verwendung ostasiatischer Lackarbeiten, in: Restauro, vol. 3, 1988, p. 187. Baer, W., Die Lackmanufaktur der Gebrüder Dagly in Berlin, in: Kühlenthal, M. (ed.), Japanische und Europäische Lackarbeiten – Rezeption, Adaption, Restaurierung, München 2000, p. 294. Baarsen, R., Furniture in Holland's Golden Age, Amsterdam 2007, p. 200. Campen, J. v., 'Reduced to a heap of monstruous shivers and splinters' – Some Notes on Cormandel Lacquer in Europe in the 17th and 18th Centuries, in: The Rijksmuseum Bulletin, vol. 2, 2009, p. 137–148. Hagelskamp, C./Duin, P. v., A seventeenth-century Dutch cabinet mounted with export lacquer, in: The Rijksmuseum Bulletin, vol. 4, 2012, p. 316–341.

7 Kessel, W. d./Dhont, G., Coromandel : Lacquer Screens, Ghent 2002, p. 15, 33.

8 Beurdeley, M., Koromandellack, in: Beurdeley, M. (ed.), Chinesische Möbel, Tübingen 1979, p. 139.

9 Breidenstein, I., Konzeptionelle Überlegungen zur Restaurierung eines chinesischen Lackparavents, in: Kühlenthal, M. (ed.), Japanische und Europäische Lackarbeiten – Rezeption, Adaption, Restaurierung, München 2000, p. 97.

10 Breidenstein, I./Hagedorn, B., Technologische Untersuchungen der Lacktafeln des chinesischen Kabinettes in Schloss Falkenlust zu Brühl, Diplomarbeit FH Köln 1992, p. 23. Kessel, W. d./Dhont, G., Coromandel : Lacquer Screens, Ghent 2002, p. 9–11.

were named after the South-East Indian Coromandel coast, where many shipping posts for European trading companies were located.

The Palace of Stadtholder's in Leeuwarden

Leeuwarden is the capital of the north-eastern Dutch province Friesland. The Stadtholder's Palace in Leeuwarden served Henry Casimir II of Nassau-Dietz and his wife Henrietta Amalia of Anhalt-Dessau as their residence from 1684. Perfectly in tune with the fashion of the time, the Princess created two chambers of curiosities in her private apartments. The first invoice relating to those rooms records the commission of carving and gilding in 1686[11], with payments of 382 guilders to the woodcarver Wytze Allerts and 350 guilders to the gilder Philippe Duruel. It is likely that the invoice included the carving and gilding of the Lacquer Room. In 1694, Henrietta Amalia of Anhalt-Dessau's inventory mentions three Chinese folding screens which were a present from her husband.[12] It describes the front and back sides as black lacquer with large figures on the front and small figures on the reverse. The screens must have been those which were later split and used to create the Lacquer Room. In 1695 the brothers Tobias and Elias van Nijmegen did substantial work for the Frysian Stadtholder and it has been suggested that this included the ceiling of the Lacquer Room.[13] The lacquer panelling of the walls is first mentioned in the 1731 inventory when William (IV) attained his majority. The document reports that the second closet is "panelled with East Indian lacquered woodwork instead of wall hangings".[14]

In 1747 Prince William IV of Orange-Nassau, the grandson of Henry Casimir, relocated to The Hague and Leeuwarden lost its significance as a residence. With the revolution of 1795, the Dutch governors were dispossessed of their power and as a consequence the inventory of the governor's palace in Leeuwarden was released for sale. In 1805 the second owner, Pieter Cats, had the rear of the building with the private apartments of the princess demolished and sold for financial reasons. The Lacquer Room was in all likelihood moved from the second closet to the smaller rectangular room.[15] An inscription in

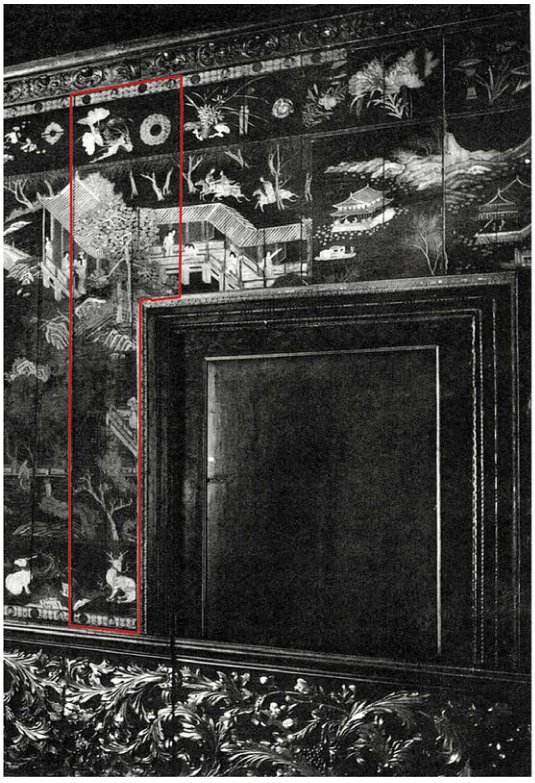
11 Haan, J. d., The Leeuwarden Lacquer Room: a Royal Puzzle, in: The Rijksmuseum Bulletin, vol. 2, 2009, p. 157.

12 Drossaers, S.W.A./Lunsingh Scheurleer, T.H., Inventaris van de inboedel van het hof te Leeuwarden 1712, 1731, 1764, in: Inventarissen van de inboedels in de verblijven van de Oranjes en daarmede gelijk te stellen stukken, 1567–1795, vol. II–III, The Hague 1974–1976, p. 141.

13 Niemeijer, J. W., De ateliernalatenschap van het Rotterdamse schildergeslacht Van Niimegen, in: Rijksmuseum Bulletin, vol. 2, 1969, p. 77.

14 Haan, J. d., The Leeuwarden Lacquer Room: a Royal Puzzle, in: The Rijksmuseum Bulletin, vol. 2, 2009, p. 158.

15 Haan, J. d., The Leeuwarden Lacquer Room: a Royal Puzzle, in: The Rijksmuseum Bulletin, vol. 2,



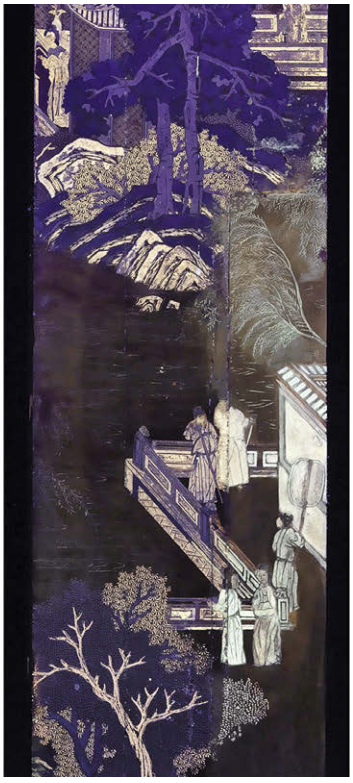


Fig. 4a. Part of the installation of the Lacquer Room in the Rijksmuseum after 1885, including a door, © Rijksmuseum.
Fig. 4b. Lacquer panel to the left side of the former door, which has been enlarged with imitation lacquer to recreate the original width of the panel in 1934, © Rijksmuseum.

pencil was recently found on the reverse of one panel with the date "1808", evidence that the panelling was dismantled [16] (see Fig. 3).

2009, p. 161–162.

16 Dorscheid, J., The Coromandel-Lacquer Room from the late 17th century in the collection of the Rijksmuseum in Amsterdam – History, Condition and Proposal for Reinstallation, Diploma Thesis University of Applied Science Potsdam 2012, p. 16.

The Lacquer Room in the Rijksmuseum in Amsterdam

In 1814 the governor's palace in Leeuwarden was handed back to the House of Orange and in 1879 donated by King William III to the State of the Netherlands. The architect Herman Rudolf Stoett undertook major alterations for its use as the Royal Commissioner's residence between 1880 and 1881. At the same time the Rijksmuseum in Amsterdam was nearly completed. Its architect Pierre Cuypers and the representative of the Minister for Interior Affairs, Jonkheer Victor de Stuers, travelled to Leeuwarden in 1880 to find examples of royal interiors and decorative arts for the new National Museum. As one of few surviving items the historic significance of the Lacquer Room was recognised and it was dismantled and shipped to Amsterdam.[17]

As the Rijksmuseum opened its doors to the public as a Palace of Arts in 1885, the Lacquer Room was installed alongside other historic interiors in the so-called "Dark Galleries" in room number 151 [18] (see Fig. 4). With the separation of the "Netherlandish Museum for History and Art" into the "Netherlands Museum for History" and the "Rijksmuseum for Sculptures and Decorative Arts", a new western wing was built in 1933 – today called the Philips-Wing. In room 345 elements of the Lacquer Room were used as the backdrop for the collection of Chinese arts and crafts.[19]

During World War II the lacquer segments were probably stored in shelters amongst other objects. After the war there was a shift towards historic authenticity under Th. H. Lunsingh-Scheurleer, the director of the *Afdeling Beeldhouwkunst en Kunstnijverheid* (Department of Sculpture and Decorative Arts).[20] In 1954 the Lacquer Room was installed into the gallery space next to Rembrandt's "Night-Watch" [21] (see Fig. 1). Lunsingh Scheurleer assembled the room to correspond with its latest appearance in Leeuwarden. With the start of the recently completed renovation in 2003, all objects and interiors were disassembled and put into storage.

17 Haan, J. d., The Leeuwarden Lacquer Room: a Royal Puzzle, in: The Rijksmuseum Bulletin, vol. 2, 2009, p. 152.

18 Duin, P. v., Historic interiors in the Rijksmuseum, in: Duin, P. v./Loosdrecht, D.v./Wheeler, D. (eds.), Historic Interiors. Conservation, Restoration and Reconstruction, Fifth International Symposium on Wood and Furniture Conservation, Amsterdam 2000, p. 79. Obreen, F. D. O., Wegwijzer door 's Rijksmuseum te Amsterdam, Schiedam 1887, p. 120–121.

19 Verslagen 's Rijks Verzamelingen 1934: 11, 19, 24.

20 Duin, P. v., Historic interiors in the Rijksmuseum, in: Duin, P. v./Loosdrecht, D.v./Wheeler, D. (eds.), Historic Interiors. Conservation, Restoration and Reconstruction, Fifth International Symposium on Wood and Furniture Conservation, Amsterdam 2000, p. 80.

21 Lunsingh-Scheurleer, T. H., Stadhouderlijke lakkabinetten, in: Opstellen voor H. van de Waal, Amsterdam/Leiden 1970, p. 168.

Fig. 5. The lacquer panelling mounted on the wall of a Rijksmuseum gallery dedicated to Asian art, as installed in 1934, © Rijksmuseum.

MATERIAL ANALYSIS

Pursuing material analysis of the binding media is of particular interest for studying the process of manufacturing and to understand present damages. A further focus is on the layer stratigraphy and the distribution of different binding media within each layer. The two nearly identical twelve-panelled screens are compared to the third screen with scenes of the "West Lake", to address conservation methods and differences in manufacturing techniques.

Methodology

One sample for each of the two types of lacquer was taken for a cross-section analysis and a selection of analytical methods was carried out on the organic and inorganic materials.

In order to determine the material composition of specific layers within a cross-section the Getty Conservation Institute in Los Angeles organized the workshop "Recent Advances in Characterizing Asian Lacquer" (RAdICAL) in 2012. The sample is glued onto a Perspex block using a drop of cyanoacrylate adhesive. The edge is polished to see the cross-section and the surface is subsequently sampled layer by layer for further analysis. This procedure allows the use of one sample for a whole range of analytical methods and all analytical results refer to the same location.[22]

The methods used were UV-light microscopy for the cross-section, Fourier Transform Infrared spectroscopy (FTIR) and pyrolysis Gas Chromatography Mass Spectrometry (py-GC/MS) for the organic binding media; for the inorganic components X-ray fluorescence (XRF) and X-ray diffraction (XRD). Fibres were analysed with polarised light microscopy (PLM). Separate samples were taken for the wooden substrate and the pigments of the coloured areas using PLM and XRF for the latter.

Sampling

The lacquer of both types of screens is comparable in assembly and materials. The cross-section taken from panel B.03 shows 7 layers (see Fig. 6). On top of the wooden substrate four foundation layers, the second of which is paper, were applied and finally covered with two lacquer layers. Samples of the foundation layers 3, 4 and 5 and one combined sample of the two lacquer layers (6 and 7) were analysed using pie-GC/MS.

Method and apparatus

The samples of the foundation and lacquer layers were analysed using Thermally assisted Hydrolysis and Methylation Gas Chromatography-Mass Spectrometry (THM-GC/MS) in combination with pyrolysis. Sample material was made into a suspension with about 10 µl of a 2.5% solution of tetra methyl ammonium hydroxide in methanol and the suspension was transferred to a steel pyrolysis cup. The sample was pyrolysed at 500°C. By combination of the heat and the reagent, the polymer fraction of the sample is fragmented, and the fatty and resin acids are methylated. The total component mixture was separated by gas chromatography, the separated components were detected and identified with mass spectrometry. The pyrolysis unit used was a Frontier Lab 3030D pyrolyser

22 Heginbotham, A./Schilling, M., New Evidence for the Use of South-East Asian Materials in Seventeenth Century Japanese Export Lacquer, in: Rivers, S./Faulkner, R./Pretzel, B. (eds.), East Asian Lacquer: Material Culture, Science and Conservation, London 2011, p. 94.

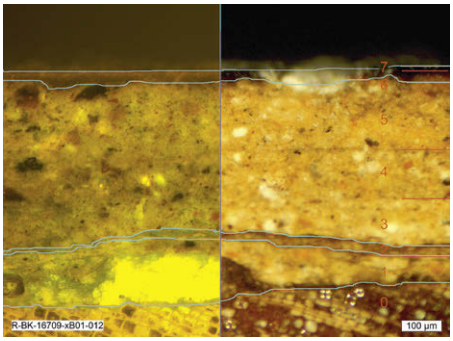


Fig. 6. The cross-section taken from panel B.03 is showing seven layers on top of the wooden substrate, four foundation layers with an intermediate paper layer (layer no. 2) were applied and finally covered with two lacquer layers (layer no. 6 and 7), © Rijksmuseum/ photo by J. Dorscheid.

mounted on a Thermo Scientific Focus GC-ISQ mass spectrometer. Separation takes place on a SLB5 ms column (Supelco) with a length of 20 meters, an internal diameter of 0.18 mm and a film thickness of 0.18 µm. Helium was used as the carrier with a constant flow of 0.8 ml/min. The temperature programme used was 35˚C stable for one minute and subsequently raised with a rate of 60˚C/min until 110˚C, a rate of 14˚C/min until 240˚C and a rate of 5˚C/min until 315˚C, the latter stable for 2 minutes. The column was directly coupled to the ion source of the mass spectrometer. The temperature of the interface was 240˚C, that of the ion source was 220˚C. Mass spectra were recorded from 29 until 600 amu with a speed of 7 scans per second. Xcalibur 2.1 was used for collection and processing of the mass spectral data.

Results of the py-GC/MS analysis

The results of the py-GC/MS analysis are summarised in Table 1, the result of the analysis of the foundation layer nr. 5 is explained in detail and its chromatogramme is shown in Figure 7. The analysis was monitored in full scan mode (upper plot) and in the range of 11 until 17 minutes also in selected ion mode to enhance the sensitivity of the detector for small amounts of Asian lacquer. Due to the method applied all carboxyl and hydroxyl groups are analysed as methyl esters and methyl ethers.

The chromatogramme shows the methyl esters of palmitic acid (FA-C16), stearic acid (FA-C18), the di-acids suberic acid (FA–2C8) and azelaic acid (FA–2C9) as well as a specific marker compound for tung oil. Tung oil contains a large amount of eleostearic acid. This will rearrange into 9-(o-propylphenyl) nonanoic acid in the drying of the oil. The peak ratio of FA-C16 and FA-C18 is 1.5 and the ratio of azelaic and palmitic acid is showing that the oil is well dried. At retention time 11.58 and 12.24 peaks of aged urushiol marker compound are present; the methyl esters and dimethoxy ethers of kumanotanic

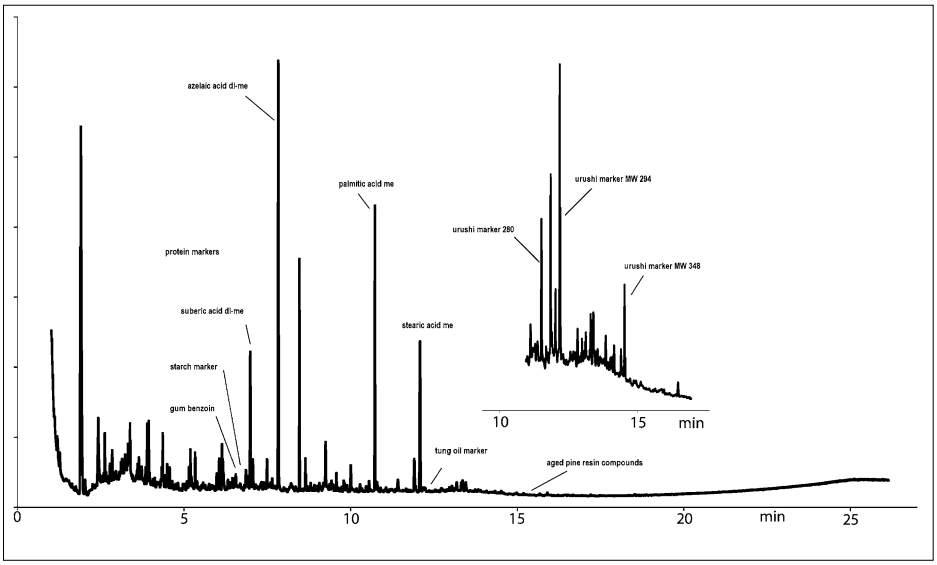


Fig. 7. The ion-chromatogram of the py-GC/MS analysis of the foundation layer nr. 5, © RCE/ photo by H. van Keulen.

acid, with a molecular weight of 280 and mazzeic acid with a molecular weight of 294. One of the initial urushiol compounds, with a molecular weight of 348, is also still present. Besides urushiol and tung oil, gum benzoin (cinnamic acid), protein and starch compounds and pyrolysis marker compounds are present. Proteins and carbohydrates are polymers, respectively of amino acids and sugars. Pyrolysis of these polymers will yield specific marker compounds. Aged pine resin compounds are present in the analysis; the type, pattern and mass spectra of the compounds can be compared with those of aged cedar oil.

At retention time 10.82 minutes, the methylester of diphenyl phosphinic acid is present. This compound is also detected in foundation layer nr. 3. The presence and the purpose of this compound are not clear. The organic composition of the sample of the foundation layer nr. 5 is identified as a mixture of protein and starch, tung oil and small amounts of urushiol, gum benzoin and cedar oil.

Discussion of material analysis

The main component in the foundation is unfired clay of uniform grain throughout the layers, with starch and protein as adhesive. The lacquer layer as such contains urushiol, a heat bodied drying oil and a black iron-colorant. The py-GC/MS also revealed degra-

dation products of urushiol in the upper layer, which can be confirmed by the optical appearance of a light-damaged surface. Additionally, the results indicate a sensitivity of all layers to polar solvents which has to be considered in regard to future treatment. The FTIR results confirmed the presence of starch and protein in the foundation, as they also revealed an even distribution throughout all layers. A wax coating added later on the surface causes a further complication. The intermediate paper layer consists mainly of hemp fibres possibly intermixed with a bamboo component. In general, the lacquer shows a typical build-up of layers for *coromandel* lacquer made for export.[23] Although a difference between the two types of the lacquer could not be noticed in the cross-sections or the material analysis, it should be noted that the craquelure of the lacquer differs between the screens with the palace scene on the two long walls and the depictions of the "West Lake" on the short wall. The lacquer panels of the two long walls show a square net of cracks in comparison to the horizontal lines on the "West Lake" panels, which could be caused by a textile layer within the foundation. The wooden substrate on which the foundation is applied was identified as *Cupressaceae* (cypress family). The pegs joining the planks to one another as well as the cleats to either end were identified as *Bambuseae* (bamboo).[24]

The py-GC/MS results for the binding media on the coloured areas were not conclusive. Based on the damage pattern and solubility it is assumed that two different binding media were used. It is noticeable that the gold and red coloured areas which are applied directly onto the foundation are extensively degraded. The colours green, blue and black are all applied on top of a coat of white (see Fig. 8), and are all in relatively good condition. The red hue consists of two components, of which one was identified as vermilion; the other is unknown at the present time. The blue was also achieved with two colorants: the pigment cobalt blue and possibly indigo dye. Green is a copper pigment, possibly atacamite.[25] The other colorants used are lead white, iron gall ink and probably gold powder.[26]

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23 Piert-Borgers, B., Asiatische Lackarbeiten an französischen Möbeln, Kühlenthal, M. (ed.), Japanische und Europäische Lackarbeiten – Rezeption, Adaption, Restaurierung, München 2000, p. 94.

24 Dorscheid, J., The Coromandel-Lacquer Room from the late 17th century in the collection of the Rijksmuseum in Amsterdam – History, Condition and Proposal for Reinstallation, Diploma Thesis University of Applied Science Potsdam 2012, p. 51, 66, Appendix C.

25 Scott, D. A., A review of copper chlorides and related salts in bronze corrosion and as painting pigments, in: Studies in Conservation, vol. 45, 2000, p. 39–53. Burgio, L./Rivers, S./et. al., Spherical Copper Resinate on Coromandel Objects: Analysis and Conservation of Matt Green Paint, in: Studies in Conservation, vol. 4, 2007, p. 241–254.

26 Dorscheid, J., The Coromandel-Lacquer Room from the late 17th century in the collection of the Rijksmuseum in Amsterdam – History, Condition and Proposal for Reinstallation, Diploma Thesis University of Applied Science Potsdam 2012, p 63.

CONDITION ASSESSMENT

As previously discussed, the Lacquer Room has undergone five alterations, in 1808, 1885, 1934, 1954 and 1985. The goal of the condition assessment was not only to inspect the current state in order to systematically address necessary conservation measures, but moreover to find correlations with previous treatments. Based on floor plans, images, historical descriptions and the technological examination, most alterations could be assigned fairly accurately to individual phases of rebuilding. They were entered in a comprehensive condition mapping. In conclusion, most major changes in the dimension of the panels, cut-outs and rejoined decorative surfaces were presumably introduced in order to adapt to doors, windows and recesses in the walls and transpired before 1880 in Leeuwarden; additions executed in lacquer imitation and changes to the oak frames on the reverse side, linseed-oil putties, wax fillers and diverse retouches could be allocated fairly precisely to the period after 1880 in the Rijksmuseum in Amsterdam.

Damages to the structure and substrate

The most severe types of damage are cracks in and warping of the wooden substrate. These can be traced back to the initial changes to the twelve panelled screens to use them as wall decoration. The individual panels were sliced and only the front of the screens was used for the wall panelling. Subsequently, each segment was reinforced by a thin oak frame, including four stretchers perpendicular to the grain direction of the substrate. The frames were glued and nailed to the substrate. Further damage was caused by cutting tongues and grooves in the sides of the panels to enable them to slot together. Before the treatment dating 1983–1985, groups of mostly three or two panels were connected from the reverse with timber beams to mount them against the wall. In 1985 the panels were screwed onto plywood boards in the same arrangement of groups of mostly three or two segments.[27] When the panels were removed from these boards the tension introduced was clearly noticeable, not to mention the difficulty of handling due to its weight.

27 Dorscheid, J., The Coromandel-Lacquer Room from the late 17th century in the collection of the Rijksmuseum in Amsterdam – History, Condition and Proposal for Reinstallation, Diploma Thesis University of Applied Science Potsdam 2012, p. 39.

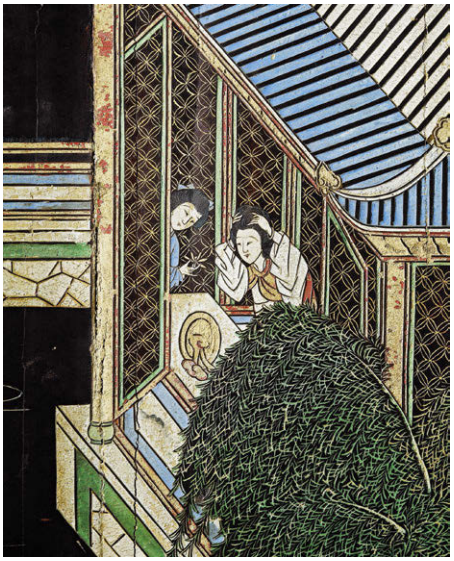

Fig. 8a/b. Two details of the coromandel lacquer panelling, © Rijksmuseum/photos by J. Dorscheid.

Damages to the lacquer and decorative surface

The overall impression of the assembled lacquer panels is good. The figurative appearance is hardly obscured despite the major losses in the polychrome areas of the recesses. The dark lacquer which forms the outlines is still present in most places and held in optical coherence by added elements such as borders, areas in imitation of lacquer and retouches. Upon closer inspection the most apparent damage is blind cleavage and delamination within the lacquer foundation, mostly above the paper lining. This is caused by a combination of moisture-sensitive binding and bulk media as well as tensions between the substrate and lacquer. This delamination also caused loss of material. The craquelure typical for Asian lacquers reveals the tensions the decorative surface suffered during the initial film-forming of the lacquer process.[28]

In the past, structural damages were usually treated with new filling materials and adhesives. Upon closer inspection, it seems fair to assume that there is a whole range of newly introduced filling-materials and adhesives. Judging by appearance, rigidity and

28 Webb, M., Lacquer: technology and conservation; a comprehensive guide to the technology and conservation of Asian and European lacquer, Oxford 2000, p. 66–61.

solubility mainly linseed-oil putty and waxes were used as fillers. Wax, PVAc and animal glues were used as adhesives for breaks, splits and linings. Besides the optical interference this also caused further complications and tensions. The abovementioned wax coating remaining from previous treatments excludes the future use of *urushi* on the surface as a possible means to restore a respectable lustre.[29]

CONCEPT FOR TREATMENT AND REINSTALLATION

The treatment is focussed on consolidation. Considering the large surface, the good general appearance as well as a safe re-installation of the room, a very extensive treatment including the improvement of previous retouching is not considered. The aim is not to restore a previous state but to consolidate vulnerable areas and to achieve a respectable and reasonably good general appearance. In order to avoid the introduction of new materials and an increase of wax on the surface as well as a deeper penetration, the removal of the wax with solvents is not considered. Excess or discoloured wax will be removed mechanically.

Consolidation of endangered areas

The major conservation issue was selecting the method for consolidating endangered areas. The criteria for potential conservation media were penetration, usability, re-treatability, durability and material compatibility. A number of possibilities for the consolidation of areas with blind cleavage and delamination was researched and tested in mock-up situations.[30] It was decided to use a mixture of rice-starch and sturgeon glue after pre-wetting with a few drops of ethanol to decrease any surface tension.[31] Treatment will be restricted to areas where delamination might easily result in future loss of material. The local raise of binding media concentration is not only very compatible, but also does not leave any disturbing surface saturation of the exposed foundation. Where it is deemed really necessary, areas with a lacquer surface and lost substrate will also be treated. *Mugi-urushi*

29 Dorscheid, J., The Coromandel-Lacquer Room from the late 17th century in the collection of the Rijksmuseum in Amsterdam – History, Condition and Proposal for Reinstallation, Diploma Thesis University of Applied Science Potsdam 2012, p. 77.

30 Dorscheid, J., The Coromandel-Lacquer Room from the late 17th century in the collection of the Rijksmuseum in Amsterdam – History, Condition and Proposal for Reinstallation, Diploma Thesis University of Applied Science Potsdam 2012, p. 93, Appendix C.

31 Schellmann, N./Taylor, A., The Effect of Consolidants on the Mechanical Fracture Behavior of Gesso-Type Foundations in Multilayered Coatings, in: Adhesives and Consolidants for Conservation: Research and Applications. CCI-ICC Symposium 2011, Ottawa 2011, p. 4.

– wheat flour and raw *urushi* – was found to have good properties. This traditional Japanese method not only allows corrections for about two or three weeks but also couples a desired flexibility with the stated criteria and an appropriate colour.

Reinstallation proposal

Besides the issue of consolidation the major question is how to reinstall the panels. The previous mounting of three or two panels onto plywood boards caused additional tension. Aluminium T-shaped vertical strips should give stability in the vertical direction allowing climatic movement in both directions[32] and can be used to fix the panels onto a horizontal construction system.

SUMMARY

As a major representative for *coromandel* lacquer rooms, the Leeuwarden Lacquer Room reflects the luxury of late 17th-century Dutch court life. The room will be installed in the Philips Wing of the Rijksmuseum, which will open 1 November 2014. The floor plan and sequence of the panels will correspond with the 1954 reconstruction of the layout at Leeuwarden between 1808 and 1880. The room will thus maintain its latest appearance, but will be consolidated and aesthetically improved by the removal of dirt and excess wax.

ACKNOWLEDGMENTS

The study and research of the Lacquer Room from Leeuwarden was carried out at the Rijksmuseum in Amsterdam. The authors thank Jan van Campen and Reinier Baarsen at the Rijksmuseum in Amsterdam and Johan de Haan at the Government Buildings Agency in The Hague for the sharing of their knowledge regarding the historical context; Dominique van Loosdrecht for the extensive gathering and in-depth research of archival materials; Arie Wallert at the Rijksmuseum in Amsterdam, Suzan de Groot at Cultural Heritage Agency of the Netherlands, Bas van Velsen at the University of Amsterdam and Giacomo Chiari at the Getty Conservation Institute for the contribution of analytical examination; Hans Michaelsen and Jörg Weber at the University of Applied Science in

32 Glatigny, J.-A., Backings of Painted Panels, in: Dardes, K./Rothe, A. (eds.), The Structural Conservation of Panel Paintings: proceedings of a symposium at the J. Paul Getty Museum, 24–28 April 1995, Los Angeles 1998, p. 364–370.

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TABLES

Layer	Designation	Py-GC/MS results
7&6	Lacquer Finish	Urushiol, tung oil, beeswax, indication for the presence of starch and protein.
5	Foundation	starch, protein, tung oil, Urushiol, gum benzoin, cedar oil, methylester of diphenyl phosphinic acid.
4	Foundation	starch, protein, tung oil gum benzoin, cedar oil, soot. Minor amount of Urushiol
3	Foundation	starch, protein (animal glue), tung oil, gum benzoin, cedar oil, paraffin wax, methylester of diphenyl phosphinic acid.

Table 1 Summarized results of the py-GC/MS analysis of the layers of the cross-section in Figure 6.

Layer	Designation	Size	Binding Medium	Bulk Material
8	Later Addition	< 5 µm	Beeswax, Paraffin-wax, Colophony	
7	Lacquer	10 µm	(aged) Urushiol, tung-oil (heat bodied), beeswax, indication for the presence of starch and protein. Layer 6 is analysed together with layer 7.	Black Iron-Colorant
6	Lacquer	19 µm		
5	Foundation	155 µm	starch, protein (animal glue), tung oil, Urushiol, gum benzoin, cedar oil, methylester of diphenyl phosphinic acid.	Quartz, Calcite, Feldspar, Kaolin (not fired), Muscovite or Biotite
4	Foundation	136 µm	starch, protein (animal glue), tung oil gum benzoin, cedar oil, soot, minor amount of Urushiol	Quartz, Calcite, Feldspar, Kaolin (not fired), Muscovite or Biotite
3	Foundation	74 µm	starch, protein (animal glue), tung oil, gum benzoin, cedar oil, paraffin wax, methylester of diphenyl phosphinic acid.	Quartz, Calcite, Feldspar, Kaolin (not fired), Muscovite or Biotite
2	Paper Layer	30 µm		Calciumcarbonat ($CaCO_3$)
1	Foundation	62 µm	starch, protein (animal glue), cedar oil	Quartz, Calcite, Feldspar, Kaolin (not fired), Muscovite or Biotite
0	Substrate	3–4 mm		Cypress Family *(Cupressaceae)*

Table 2 Summarized Results of the Layers of the Cross-Section in Figure 6.

Colour	Pigment	Molecular Formula/Element
White	Lead white	$C_2H_2O_8Pb_3$
Black	Iron-Gall Ink	Fe
Gold	Gold	Au
Red	Vermillion	HgS
Green	Clinoatacamite, Atacamite, Paratacamite or Botallackite, (no Malachite)	$Cu_2(OH)_3Cl$
Blue	Smalt, Cobalt blue (one further component, possibly Indigo dye)	CoO

Table 3 Summarized Results of Colorants found on the Lacquer Panels.

List of Authors

Tatjana Bayerová; University of Applied Arts Vienna, Institute of Conservation, Salzgries 14, 1010 Vienna, Austria. tanja.bayerova@uni-ak.ac.at

Elisabeth Van Besien; Buildings Agency of the Belgian Government, Restoration Department, Avenue de la Toison d'Or 87b, 1060 Brussels, Belgium.
elisabeth.VanBesien@buildingsagency.be

Ewa Björdell; Stockholms Målerikonservering AB, Box 3605, 103 59 Stockholm, Sweden. ewa@konservering.se

Melissa H. Carr; Principal. Masterwork Conservation, 69 Webcowet Road, Arlington, MA 02474, USA. hiattcarr@verizon.net

Hugo Claes; Buildings Agency of the Belgian Government, Restoration Department, Avenue de la Toison d'Or 87b, 1060 Brussels, Belgium. hugo.Claes@buildingsagency.be

Marjolein Deceuninck; Studio for research on monuments and artefacts at Fenikx bvba, F. Burvenichstraat 171/002, 9050 Gentbrugge, Belgium. fenikx@skynet.be

Jan Dorscheid; Philadelphia Museum of Art, Conservation of Furniture and Woodwork, 2600 Benjamin Franklin Pkwy, Philadelphia, PA 19130, USA.
jan.dorscheid@philamuseum.org

Paul van Duin; Rijksmuseum, Furniture Restoration, Postbus 74888, 1070 DN Amsterdam, The Netherlands. p.van.duin@rijksmuseum.nl

Anna Ekielska; Wilanów Palace (former curator), ul. Stanislawa Kostki Potockiego 10/16, 02-958 Warsaw, Poland. aekielska@gmail.com

Gyorgyi Fajcsak; Ferenc Hopp Museum of East Asian Arts, Andrássy út 103, 1062 Budapest, Hungary. gyorgyi.fajcsak@hoppmuseum.hu

Martina Griesser; Kunsthistorisches Museum Wien, Conservation Science Department, Burgring 5, 1010 Vienna, Austria. martina.griesser@khm.at

Yasuhiro Hayakawa; National Research Institute for Cultural Properties, Japan. Center for International Cooperation in Conservation, 13-43 Ueno Park, Taito-ku, Tokyo, 110-8713, Japan. hayakawa@tobunken.go.jp

Noriko Hayakawa; National Research Institute for Cultural Properties, Japan Center for International Cooperation in Conservation, 13-43 Ueno Park, Taito-ku, Tokyo, 110-8713, Japan. noriko@tobunken.go.jp

Stefan Holcik; Archaeological Museum of the Slovak National Museum (Slovenské národné múzeum), Vajanského nábrežie 2, 81436 Bratislava, Slovakia.
gsholcik@mail.t-com.sk

Hella Huber; Bayerische Verwaltung der staatlichen Schlösser, Gärten und Seen, Restaurierungszentrum, FB2 (Möbel und Holzobjekte), Schloss Nymphenburg, Eingang 18, 80638 Munich, Germany. hella.huber@bsv.bayern.de

Elfriede Iby; Schloß Schönbrunn Kultur- und Betriebsges.m.b.H, Abteilung für Forschung und Dokumentation, Schloß Schönbrunn, 1130 Vienna, Austria.
Iby@schoenbrunn.at

Maria João Petisca; Rua Maria Vela, Bloca A, N2, 3E, 6300-570 Guarda, Portugal.
johnnypetisca@gmail.com

Susanne M. Käfer; Restoration and Conservation of Furniture and Wooden Objects, Eyzinggasse 23, 1110 Vienna, Austria. kaefer@furniture-conservation.at

Wataru Kawanobe; National Research Institute for Cultural Properties, Japan Center for International Cooperation in Conservation, 13-43 Ueno Park, Taito-ku, Tokyo, 110-8713, Japan. kawanobe@tobunken.go.jp

Henk van Keulen; Cultural Heritage Agency, Sector Movable Heritage, Postbus 1600, 3800 BP Amersfoort, The Netherlands. h.van.keulen@cultureelerfgoed.nl

Peter Kopp; Kopp Restauratoren GmbH, Rienösslgasse 12, 1040 Vienna, Austria.
p.kopp@kopp-restauratoren.at

Elisabeth Krebs; Metallrestaurierung, Rienösslgasse 12, 1040 Vienna, Austria.
e.krebs@aon.at

Gabriela Krist; University of Applied Arts Vienna, Institute of Conservation, Salzgries 14, 1010 Vienna, Austria. gabriela.krist@uni-ak.ac.at

Richard Miklin; Studio for Conservation and Restoration, Bernardgasse 4/1, 1070 Vienna, Austria. richard.miklin@chello.at

Silvia Miklin-Kniefacz; Studio for Conservation and Restoration, Bernardgasse 4/1, 1070 Vienna, Austria. silvia.miklin@gmx.at

Charles J. Moore; The Preservation Society of Newport County, Conservation, 424 Bellevue Avenue, Newport, RI 02840, USA. cjmoore@newportmansions.org

Birgit Müllauer; University of Applied Arts Vienna, Institute of Conservation, Salzgries 14, 1010 Vienna, Austria. birgit.muellauer@gmx.net

Walther Parson; Medical University of Innsbruck, Institute of Legal Medicine, Müllerstrasse 44, 6020 Innsbruck, Austria. Penn State – Eberly College of Science, 517 Thomas Bldg, Shortlidge Rd, University Park, PA 16802, USA.walther.parson@i-med.ac.at

Sara Picchi; Rienösslgasse 12, 1040 Vienna, Austria. sppk59@gmail.com

Václav Pitthard ; Kunsthistorisches Museum Wien, Conservation Science Department, Burgring 5, 1010 Vienna, Austria. vaclav.pitthard@khm.at

Carmen Romero; Stockholms Målerikonservering AB, Box 3605, 103 59 Stockholm, Sweden. carmen@konservering.se

Manfred Schreiner; Academy of Fine Arts, Institute of Science and Technology in Art, Schillerplatz 3, 1010 Vienna, Austria. m.schreiner@akbild.ac.at

Florian Schwetz; Restoration and Conservation of Furniture and Wooden Objects, Eyzinggasse 23, 1110 Vienna, Austria. kaefer@furniture-conservation.at

Sabine Stanek; Kunsthistorisches Museum Wien, Conservation Science Department, Burgring 5, 1010 Vienna, Austria. sabine.stanek@khm.at

Filip Suchomel; Academy of Arts Architecture and Design Prague, Namesti Jana Palacha 80, 11693 Prague 1, Czech Republic. filip.suchomel@volny.cz

Manfred Trummer; Museum of Applied Arts Vienna, Conservation Department Stubenring 5, 1010 Vienna, Austria.manfred.trummer@mak.at

Ann Verdonck; Vrije Universiteit Brussel, Faculty of Engineering, Department of Architectural Engineering, Pleinlaan 2, 1050 Elsene, Belgium. Studio for research on monuments and artefacts at Fenikx bvba, F. Burvenichstraat 171/002, 9050 Gentbrugge, Belgium. ann.verdonck@vub.ac.be

Shuya Wei; University of Science and Technology Beijing, Institute of Historical Metallurgy and Materials, Xueyuan Road 30, Beijing, China. sywei66@hotmail.com

Anthony Wells-Cole; Temple Newsam House (formerly Senior Curator), Leeds LS15 0AE, UK. awc21@hotmail.co.uk

Yoshihiko Yamashita; National Research Institute for Cultural Properties, Japan Center for International Cooperation in Conservation, 13-43 Ueno Park, Taito-ku, Tokyo, 110-8713, Japan. yyamashita@tobunken.go.jp